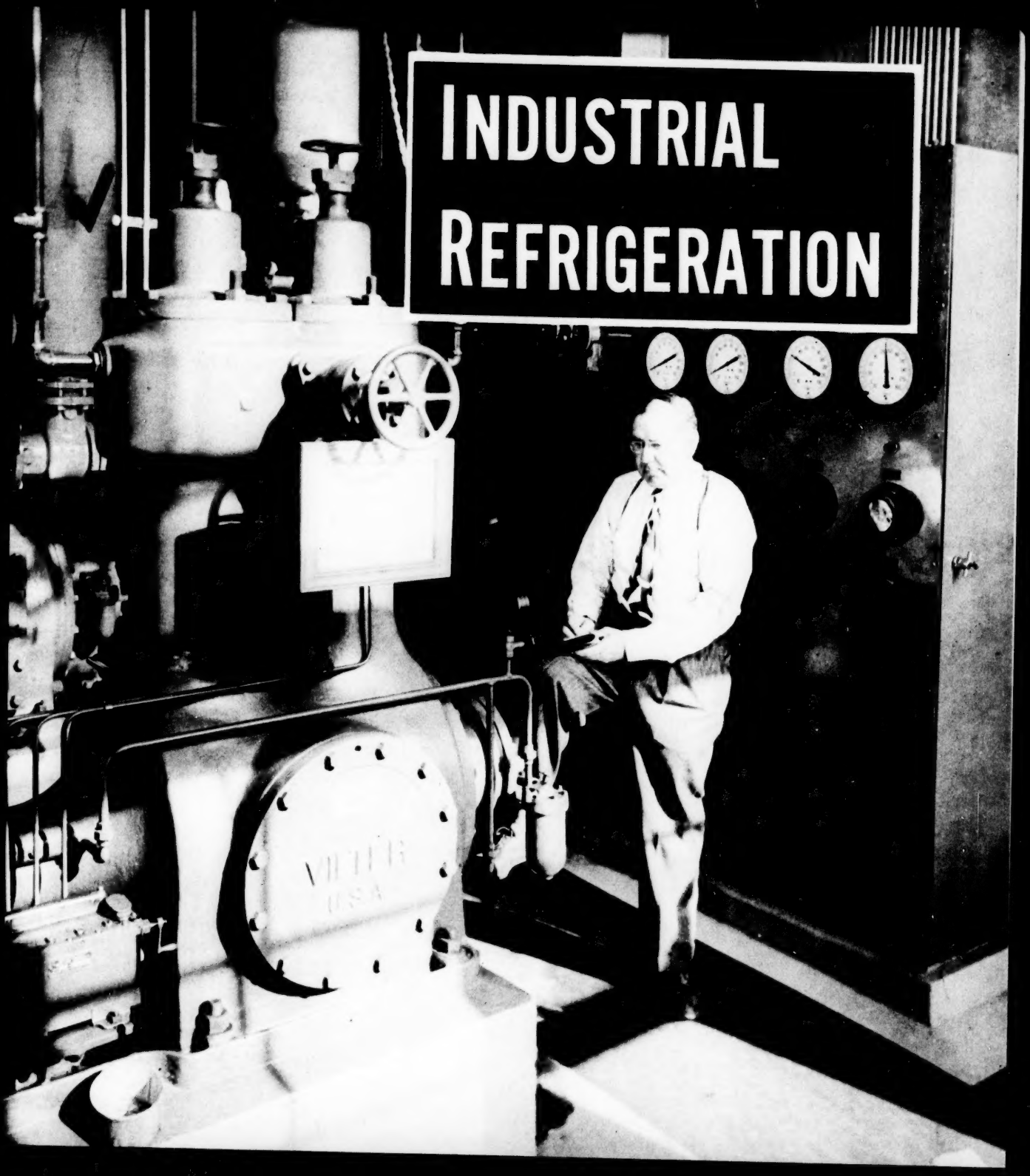

INDUSTRIAL
REFRIGERATION

$ave Power

and

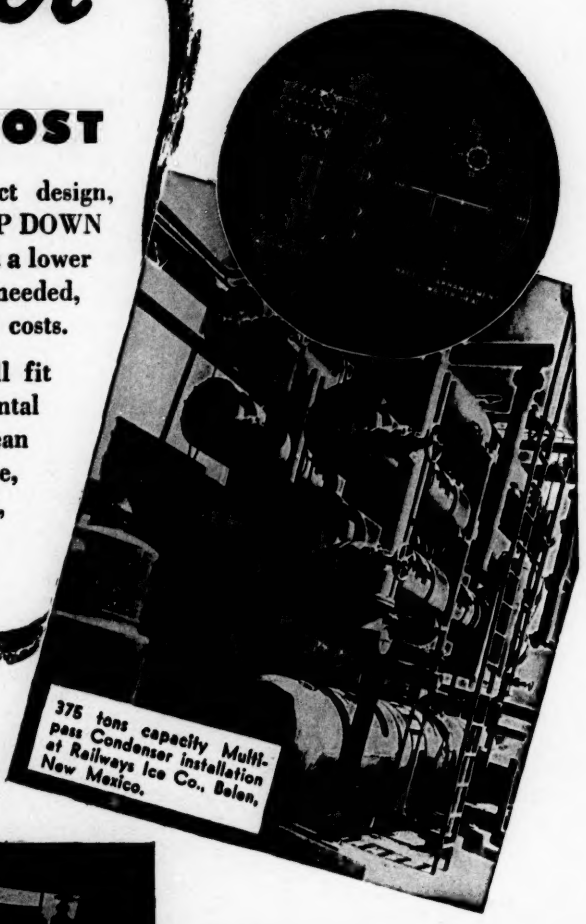
REFRIGERATION COST

Vogt Condensers, because of their correct design, STEP UP the rate of heat transfer and STEP DOWN head pressures. With the liquid delivered at a lower temperature, smaller compressor capacity is needed, saving in original as well as operating costs.

One of the two basic types illustrated will fit your operations exactly. Install Horizontal Multipass (closed type) for use with clean waters. Where the water is hard, forms scale, contains mud or promotes fungus growth, Vertical Single Pass (film type) which can be cleaned in operation, are recommended.

Horizontal Multipass Condensers
(Closed Type)

Water circulated in tubes traverses the length of the unit a number of times as determined by baffles in the heads.



375 tons capacity Multipass Condenser installation at Railways Ice Co., Belen, New Mexico.

Vertical Single Pass Condensers
(Film Type)

Patented ferrules give equal distribution of water to and over the surfaces of all tubes in a unit.

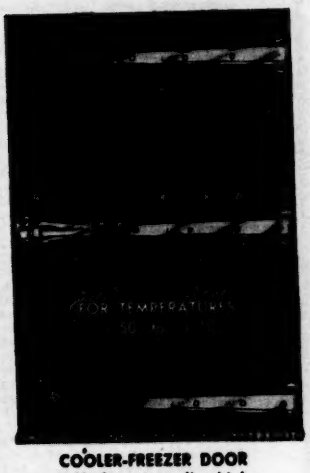
Battery of eight 42"x 16'-0" Vertical, Single Pass, Condensers at Armour and Company, National Stockyards, Illinois.

HORIZONTAL and VERTICAL TYPES SHELL and TUBE CONDENSERS For Every Service

Write For Bulletin RC-2

HENRY VOGT MACHINE COMPANY
INCORPORATED
1000 W. ORMSBY ST., LOUISVILLE 10, KY., U.S.A.
Branch Offices: NEW YORK, CHICAGO, CLEVELAND, DALLAS, PHILADELPHIA, ST. LOUIS, CHARLESTON, W. VA.

Vogt REFRIGERATION CONDENSERS



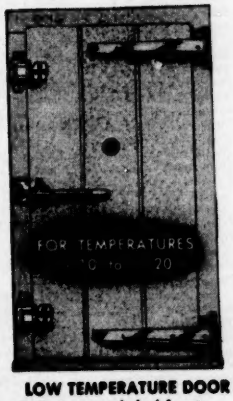
COOLER-FREEZER DOOR
- Modern streamlined job
- 100% "Douglas Fir"
- Sanitary hardware

X-52 PLYWOOD PANEL DOOR
- Plywood front and back
- Extra heavy-duty hardware
- Special type gaskets

UPPER CORNER CONSTRUCTION

LOWER CORNER CONSTRUCTION

- Maximum insulation fill
- Most possible rigidity
- Allows reversal of swing

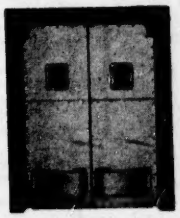


LOW TEMPERATURE DOOR
- Entire metal-clad front
- Extra heavy-duty hardware
- Special type gaskets

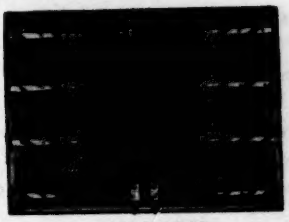
SUPER FREEZER (OVER-LAP) DOOR
- Extra-heavy construction
- Extra-heavy duty gaskets
- Extra heavy-duty hardware

VESTIBULE DOOR
- Save time—labor
- Save refrigeration
- Large plant operation

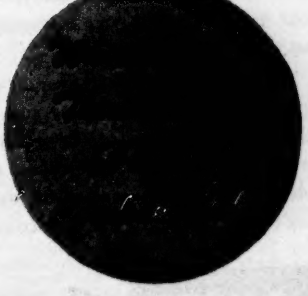
TRACK DOOR
- For abattoirs
- Meat handling rails
- Banana rooms



AUTO-CLOSE DOOR
- For loading dock
- Intra-cooler doors
- Heavy trucking



DOUBLE DOOR
- For palletizing
- For carloading
- For elevator shafts



BUTCHER BOY REFRIGERATOR DOOR CO. • HARVARD, ILL.

ARMOUR AMMONIA IS PRE-TESTED FOR QUALITY

Purity tests prevent "freeze-ups" and corrosion

Inspecting cylinder

Qualitative analysis

Checking the seal

Every 100- and 150-lb. cylinder of Armour ammonia must pass rigid tests before it's rushed to a customer. The empty cylinder is carefully inspected, painted, and filled with ammonia of 99.98% purity by test. As each cylinder is filled, the ammonia is subjected to an exacting qualitative analysis. Then the cylinder is sealed—your guarantee that your ammonia is just as it was when it left our plant.

These tests prove that Armour ammonia is pure, dry and free from non-condensable gases and oil. That's why our customers rely on Armour ammonia to prevent ice in evaporators, "freezing up" at expansion valves, corrosion and other damage. For dependable ammonia and service, call the Armour office nearest you—they're listed at right for your convenience.

ARMOUR *Ammonia Division*

Armour and Company • 1355 W. 31st Street • Chicago 9, Illinois

Wherever you are, there's an Armour office within reach of your telephone. So call and get acquainted with your Armour ammonia salesman today!

Birmingham, Ala.	37225
Little Rock, Ark.	9135
Los Angeles, Cal.	Michigan 8181
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Sacramento, Cal.	GI 3-7424
San Francisco, Cal.	GA 1-8650
South San Francisco, Cal.	JUno 8-7714
Denver, Colo.	Tabor 8121
Waterbury, Conn.	3-3181-2-3-4-5
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South St. Paul, Minn.	LaSalle 6481
St. Paul, Minn.	GA 4351-6
South St. Joseph, Mo.	8-0661
St. Louis, Mo.	Main 3600
South Omaha, Neb.	Market 5400
North Bergen, N. J.	Union 7-1776
Passaic, N. J.	Prescott 7-0300
Paterson, N. J.	Sherwood 2-8040-1-2-3-4
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Charlotte, N. C.	3-5152-3-4
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Cleveland, Ohio	Endicott 1-1160
Columbus, Ohio	Garfield 2161
Toledo, Ohio	Adams 9131
Oklahoma City, Okla.	79-2551
Tulsa, Okla.	37151-2-3
Portland, Ore.	Twinoaks 1151
Philadelphia, Penna.	Poplar 5-0100
Pittsburgh, Penna.	Hemlock 1-1200
Pittsburgh Prov. & Packing Co., Penna.	GR 1-2460
Providence, R. I.	EL 1-1400
Chattanooga, Tenn.	6-4725
Knoxville, Tenn.	3-5135-6
Memphis, Tenn.	5-4311
Amarillo, Tex.	6-5246
Corpus Christi, Tex.	6-5246
Dallas, Tex.	Edgemont 2-3735
El Paso, Tex.	3-3621
Fort Worth, Tex.	Market 2101
Harlingen, Tex.	2050
Houston, Tex.	Capitol 1175-5
Lubbock, Tex.	5596
San Antonio, Tex.	Garfield 5321
Richmond, Va.	3-1876
Roanoke, Va.	7751-2-3
South Norfolk, Va.	66-2441
Seattle, Wash.	Elliot 7180
Spokane, Wash.	Lakeview 1541
Charleston, W. Va.	27-165
Milwaukee, Wisc.	MA 8-6200

AGENTS

Indianapolis, Ind.: A. Hoffman Co. State Life Building....Market 8666

Nashville, Tenn.: Sanders, Inc. 712 8th Ave., S.....6-7111

Tampa, Fla.: C. Scott Johnson 3502 Nebraska Ave.....2-1495

LETTERS

(Letters to the editor are welcome from readers of INDUSTRIAL REFRIGERATION on any subject of general interest.)

Memories Revived

Buffalo, N. Y.

In the March issue of INDUSTRIAL REFRIGERATION page 40 is shown a cold storage building with an ice girdle. This really brought back to me memories. I was engineer at the old Cold Packing Co. plant here in Buffalo.

On many occasions I have seen this same condition right in summer weather. The sharp freezer floors were on the William Street side and often had a nice coating of frost on the outside.

This was a very old plant and when it was closed down for good several large cooler rooms collapsed because the only thing that appeared to be holding the place together was the frozen condition of the cooler rooms.

I could write a book about some of the screwy things that happened there but the plant has been long torn down and in its place is a play ground, so — let the dead rest.

R. G. SUMMERS

Denver Adopts New Refrigeration Code

A NEW mechanical refrigeration code for Denver, Colo., has been announced by Joseph L. Antonio, supervisor of the mechanical division of the city building department. The new code was passed by city council. Antonio said it brings this portion of the building regulations up to modern standards. It was written by the refrigeration code advisory committee representing manufacturers, contractors and engineers.

Ladybugs Refrigerated

LADYBUGS, kept dormant in cold storage during the flight were shipped by air by the Arabian Oil Company from New York to Saudi Arabia to destroy plant lice affecting crops at the Al Karj experimental agricultural project operated by the Saudi Arabian Government. The ladybugs, six gallons of them,—135,000 to the gallon,—were bought from a grower in Arizona. Although dormant during the flight they thawed out in a hurry at Al Karj.

Industrial Refrigeration

formerly ICE AND REFRIGERATION

Now in its 63rd Year of Publication

J. F. NICKERSON, FOUNDER

Vol. 126 June, 1954 Number 6

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The Cover:

Erwin Steinert, supervising engineer, checks operation of refrigeration installation in new addition to Merchants Ice & Cold Storage plant, San Francisco, Calif. The installation consists of four Vilter vertical ammonia compressors and two EC — 80 evaporative condensers. The four compressors, two 9½ x 9½ and two 13½ x 10½ boosters operate under a two-stage system. The two 13½ x 10½ units provide the first stage of the system and operate under 60 hp. The two 9½ x 9½ units provide the second stage and are driven by two 75 hp motors. Story on page 30.

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What's New

MACHINERY
APPLIANCES • PROCESSES

Electric Penny Refunder For Vending Machines

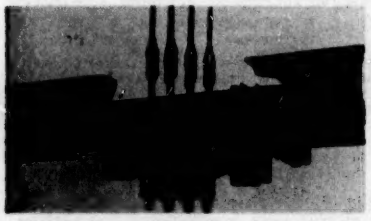
WITH the penny playing a more important part of our economy every day, National Rejectors, Inc. has developed and marketed a penny refunder. Operators in all parts of the country are converting more and more vending machines to handle odd cent sales. This has created a demand for better penny handling.

View of new penny refunder showing mechanism

The new 6600 series Electric Penny Refunder gives the customer single coin operation. It features fast hopper-loading with a large 2000 penny capacity that is easily inventoried. There's a simple plug-in installation with front, side or inside mounting. Should it be necessary to make a price change, this can be done right on location in just a short time. The entire mechanism is precisioned engineered to prevent jack-potting and National's Penny Refunder can be used in connection with any other National electric coin mechanism.

New Load Limitor For Elevators

A NEW freight and passenger elevator safety device is now offered by The Montgomery Elevator Company, Moline, Ill. Designed to automatically weigh the load on the elevator, the Montgomery Load Limitor prevents elevator operation when overloading occurs. Visual and audible signals are provided to indicate when maximum safe load and overload of elevator is reached. It has three applications. It can be used as a load-weighing device to prevent elevator movement when overloaded, it enables a fully loaded passenger elevator to automatically by-pass hall calls when there isn't space for more passengers and it can be employed as a speed-changing and load-limiting device on double-duty dual-speed elevators.



New Montgomery Load Limiting Device

York Offers Residential Air Conditioning Unit

A NEW low-cost year-round residential air conditioning unit designed to give complete comfort at low operating cost has been introduced by York Corp., York, Pa. This new year-round air conditioning unit that heats or cools a complete home is designed for the living needs of the American household.

Manufactured as a complete package, the unit will initially be built in a range of models with 2 and 3 horsepower cooling capacities. The heating side of the unit is either an oil or gas-fired furnace, depending upon the owner's choice. The cooling side in either case is a completely hermetically sealed circuit which brings to residential air conditioning the same degree of dependability of performance and trouble-free operation that characterizes the sealed mechanism in the most modern electrical refrigeration for home use.

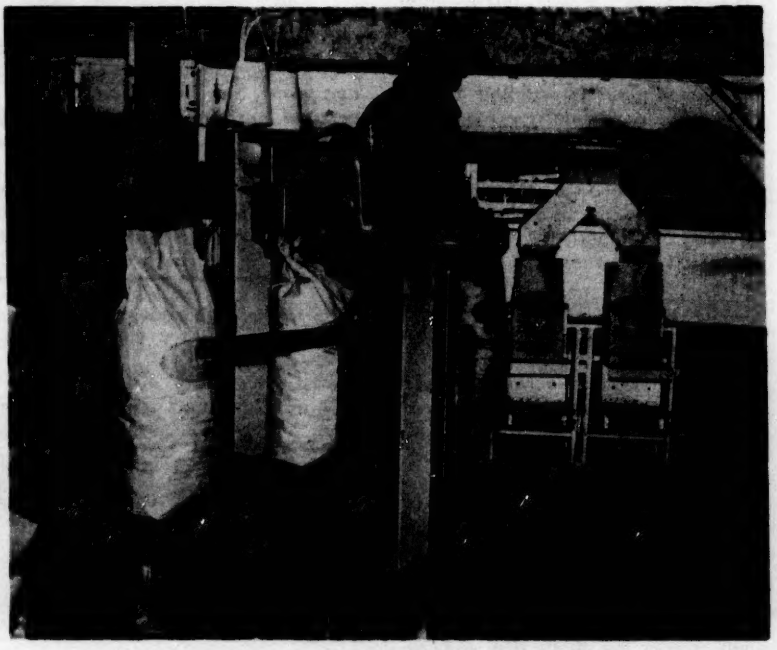
New Closing Machine For Paper Ice Bags

REALIZING the necessity of a low-cost paper ice bag closing machine for the ice industry, J. J. Ballard, Jr. of Ballard Sales Co., Fort Worth, Texas, started working with I. J. Lockwood, of Lockwood Graders, Gering, Nebraska, on an automatic sewing machine. The result was the "Eskimo" ice bag sewing machine, the only entirely automatic sewing machine at this time.

The belt runs continuously, but the Union Special sewing head sews only when there is a bag in the conveyor. The conveyor is easily moved up or down for small or large bags. This method of closing bags is more economically priced than other methods. There are many other advantages, including lower cost per bag closed.

First, there is no chance of the bags being tampered with after they are filled — full weight. Next, there is no possibility of getting fingers hurt on sharp points of staples or wire; simply tear down to the sewing line and tear open the bag. For vendor operators, there is no stiff neck to hang on the sides of the vendors, bags stack evenly on pallet and vendors. Machine works very fast to save labor.

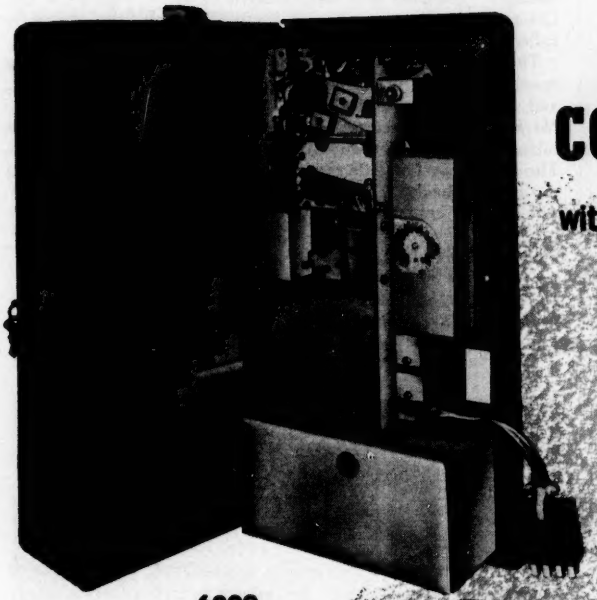
The "Eskimo" Sewing Machines have been in service for several months and are giving very economical service. Union special sewing heads are noted for long life and low maintenance, and are used exclusively on the "Eskimo" Paper Ice Bag Machine.



Ice Bag Closing Machine Made by Ballard Sales

Mr. Ice Vendor . . . here's your

Automatic Attendant!

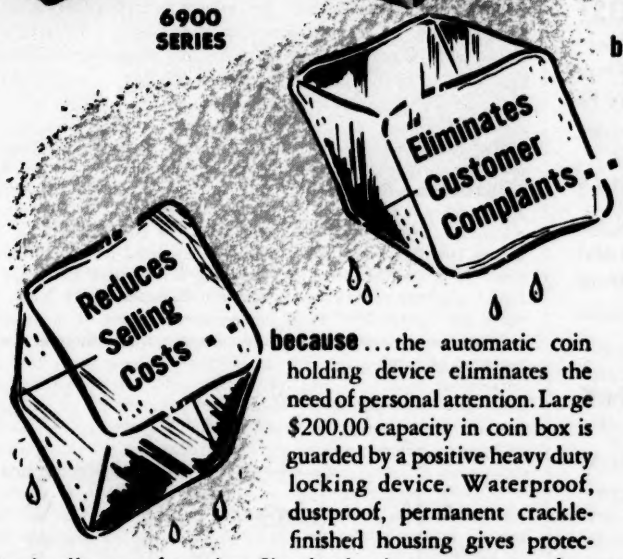


NATIONAL'S 1954
COIN ACCUMULATOR

with these big features:—

- **Coin Holding Device**
- **Weather-Proof**
- **Large Cash Box**
- **Plug-in Components**

6900 SERIES



because . . . the exclusive *escrow feature* holds all coins until the vend is completed. At any time prior to the sale, the coins may be returned to check for accuracy. Customer can change his mind after inserting partial cost of merchandise and no money is lost. Red light signals when machine is empty.

because . . . the automatic coin holding device eliminates the need of personal attention. Large $200.00 capacity in coin box is guarded by a positive heavy duty locking device. Waterproof, dustproof, permanent crackle-finished housing gives protection in all types of weather. Simple plug-in components reduce installation and service costs.

Contact your vendor manufacturer or one of NATIONAL'S service offices.

FRONT VIEW—
6900 SERIES

Designed to take quarters, dimes, and nickels in any sequence. (A unit can also be furnished for odd cent sales).

Liberal trade-in allowance on old equipment

Also available National's Control Box No. 4300-78A, designed especially for the National Accumulator. New unit controls length of vending cycle, has accurate counter and two convenient circuit-breakers for safety. U.L. Approved.

Comparison will prove there is no comparison

NATIONAL REJECTORS INC.

5100 San Francisco Ave. • St. Louis 15, Mo.
Phone COlfax 1-1900

ATLANTA 3, GEORGIA, 805 Peachtree St., N. E.—Phone: ELgin 4318
CHICAGO 30, ILL., 4007 W. Fullerton Ave.—Phone: NAtional 2-3044
DALLAS 5, TEXAS, 3202 Knox Street—Phone: JUstin 2291
LOS ANGELES 8, CALIF., 2200 West Pico Blvd.—Phone: DUnkirk 2-5772
TORONTO, ONTARIO, CAN., 1551a Eglinton Ave., West, Orchard 2805
WOODSIDE, L. ISLAND, N. Y., 38-38 61st St.—Phone: Illinois 6-6382

400 TONS CAPACITY

PATENTED DUO-PASS and OILOUT

Aeropass CONDENSER

U. S. Patent Reissue No. 21,917; 22,553

YOU USE LESS POWER...

SAVE CONDENSER WATER...

SAVE UPKEEP COST

For large refrigeration systems, NIAGARA gives you a choice between a battery of condensers (that may be cut on or off with the load) or a high capacity condenser that saves space.

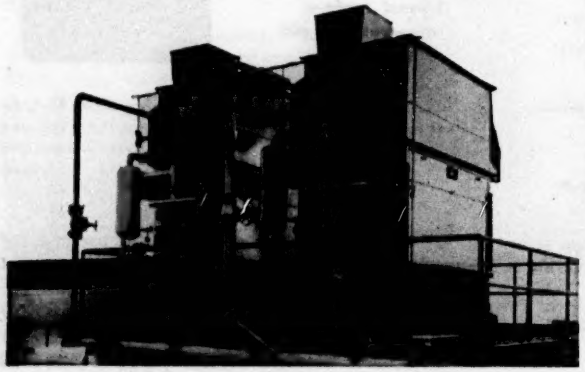
Both have the patented "Duo-Pass" and "Oilout" that remove superheat and keep the system free of oil. Results: you save one-third or more of power cost and upkeep expense. Niagara Patented Balanced Wet Bulb Control gives lowest head pressure operation automatically. *Write for Bulletin 111.*

NIAGARA BLOWER COMPANY

Over 35 Years Service in Industrial Air Engineering

Dept. IR, 405 Lexington Ave. New York 17, N. Y.

Field Engineers in Principal Cities of U. S. and Canada

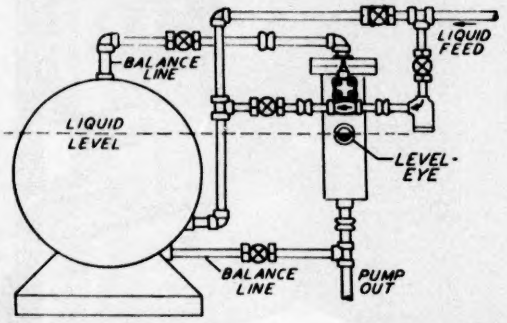


New Equipment—Continued

New Device Checks Pressure Sealed Systems

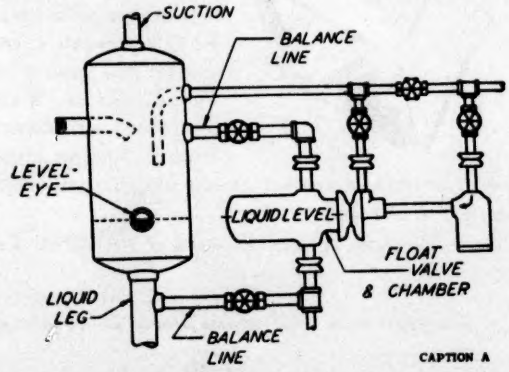
A UNIQUE and inexpensive bullseye has been developed to check pressure-sealed systems for liquid level, gas-liquid ratio, cleanliness of liquid, and operation of sealed valves and linkages. Designed and manufactured by H. A. Phillips & Co., Chicago manufacturer of refrigeration controls, the device is called the "Level Eye" after one of its principle applications.

The "Level Eye" is suitable for installation on tanks or piping systems operating at temperatures between 250 and minus 50 F, and at hydraulic pressures to 300 psig. Special units are available for higher pressures. For very low temperature systems, a lucite frost shield is inserted over the glass to keep it frost-free. The shield may be easily removed for cleaning without disturbing the pressure seal.



The new "Level Eye" gives a positive, inexpensive check on liquid level in surge drums, receivers, and other types of pressure vessels. Liquid behind the glass appears black; the absence of liquid leaves the glass clear.

Basically a heat tempered glass lens with a series of concentric reflecting prisms on the liquid side of the glass, the "Level Eye" reflects light where there is no liquid while liquid behind the glass causes it to appear black. This prism-type lens has definite advantages over transparent types since it is not fouled by oil and dirt in the liquid and does not require a second lens for illumination. It is ideally suited for detecting level where the range of liquid movement is not more than the diameter of the lens. Because the "Level Eye" is so inexpensive, however, it is practical to mount a vertical series of units on tanks where there is a wide variation of level.



CAPTION A

The "Level Eye" can be installed on float valves to show both liquid level and position of the float and linkage. Other uses include mounting a series of units vertically on tanks where there is a wide variation in level.

The "Level Eye" will be available on all Phillips low and high pressure Float Controls for refrigerants, and will be incorporated into surge drum designs when specified. Units for customer or contractor installation will be available through selected distributors. While originally designed for refrigeration applications, on valves, surge tanks and receivers, the manufacturer explains the unit can also be used with most liquids and gases, including oil, making it suitable for oil refineries, chemical processing systems and steam plants. Patents have been applied for. For full information about the "Level Eye", write H. A. Phillips & Co., 3255 West Carroll Ave., Chicago, Illinois.

Worthington Refrigeration Helps Study of Hot Box Problems

AT American Brake Shoe Company's new bearing laboratory in their research center at Mahwah, N.J., a Worthington refrigeration system provides and maintains correct temperatures for studying the performance of journal bearings in railroad use, and various lubricating methods to eliminate the so-called hot box problem.

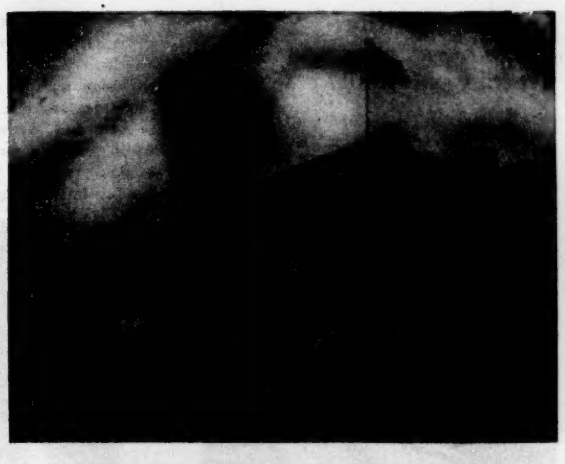
A Worthington refrigeration compressor driven by a 40 hp motor is used for obtaining large temperature drops in the test room and for holding it at very low temperatures. A smaller Worthington compressor, driven by a 5 hp motor, is used for minor adjustments in temperature, and for holding at values slightly below outside room temperature.

Worthington refrigeration equipment which provides and maintains correct temperatures for study of hot box problems in American Brake Shoe's Journal Bearing Test Laboratory at Mahwah, N.J.

Any temperature setting made is automatically maintained in the test room through controls on the refrigeration system and the heating system. The controls, in turn, depend on information supplied by thermocouples located throughout the test room. All of the equipment in the test room and the machinery room is controlled at the operators panel in a separate control room where the operator looks directly into the test room through a thermopane window. A system of weights can exert simulated loads up to 20,000 pounds per journal. A hydraulic loading arrangement permits applying as much as 40,000 pounds to the journal bearing.

Protective Tape Coatings

PRE-FORMED film coatings that assure a uniform corrosion barrier with a single wrap have been introduced by Polyken Products Division of the Kendall Company, Chicago, Ill. This 8 Mil inert Polyethylene film with its extra-heavy 4 Mil adhesive gives double-barrier protection against corrosive attack. The tough, oriented elastic film resists corrosion, resulting from atmospheric, chemical or electrolytic causes. The field of greatest utility to date has been that of protective tape coatings in pipe corrosion situations. Its value appears to be in its ability to seal cellular thermo insulation against water and moisture penetration and, at the same time, insulate the insulation against any surrounding corrosive atmospheres to which it may be exposed. These coatings are available in two colors, black and gray.



REFRIGERATION COSTS REMAIN UNCHANGED FOR MANY YEARS

By Philip D. Sang, Vice President,
Goldenrod Ice Cream Co., Chicago, Ill.

"Over a period of 23 years we constructed seven ice cream hardening rooms, using cork insulation. In 1935, after consolidating production in one plant, we commissioned United Cork Companies to design and construct a new hardening room of the most modern type and efficiency. This was to maintain a temperature of –40° and called for 8000 sq. ft. of surface area.

"This room proved so successful that another room was built in 1945. So far as we can ascertain, the consumption of electricity for refrigerating these rooms is now no greater than when they were new.

"If called upon for further expansion, we would certainly again use corkboard insulation."

Integrated Responsibility

A major factor in the effectiveness of United BB Corkboard in this and thousands of other installations in meat, milk, frozen food plants and other applications requiring low-temperature insulation is to be found in the unified responsibility of United Cork Companies . . . from selection of the grades of raw materials imported to the erection of the complete job.

Cork itself, of course, has unique natural insulation properties, and United Cork's patented process of block baking (BB) the cork granules into corkboard without the use of any binder makes most effective use of these natural advantages.

Each installation of United Cork BB Corkboard is planned by engineers thoroughly experienced in the requirements of refrigeration work. These engineers are located at each of United Cork's branch offices throughout the country. They are prepared to cooperate with architects and general contractors in designing low-temperature insulation as an integral part of the complete building.

United Cork Companies' erection crews, which are also located at each of the branch offices, then take the engineering blueprints and convert the designs into a finished insulation job. The branch office concerned also checks on the operating effectiveness of each installation to assure complete customer satisfaction.

If you would like to know more about the scope of United Cork Companies' service—and about the ways in which installations have stood up under the toughest conditions—just drop a line to United Cork Companies, Dept. I-6, Kearney, N. J.

Low Temperature Chambers For Cold-Treating Metals

TO PROVIDE low-temperature chambers for cold-treating metals, Tenney Engineering, Newark, N.J. recently expanded its line of low-temperature "Sub-Arctic" chambers to include models for producing temperatures to minus 170 F. The new lower temperature units are equipped with special rotary compressors designed for use with latest Freon refrigerants.

Tenney sub-arctic chamber for producing low temperatures

The "Sub-Arctic" is available with 1, 4, 6, 9 and 12 cu ft work spaces. Chambers in all five sizes are available for producing temperatures to −40, −80, −100, and −120 F. All but the 1 cu ft model are available for producing temperatures to −150 and −170 F.

Typical metal-treating applications of the low temperature cabinets are quick-aging, stabilizing, stress equalization, shrink-fitting, hardening, and super-hardening of tool steels.

For example, sub-zero treatment gives greater hardness than is possible with ordinary heat treatment. In steels, the percent Austenite (soft constituent) remaining after ordinary treatment may be as high as 33 percent. With cold treating, retention of less than five percent Austenite is possible, indicating that 95 percent or more of the ultimate Martensitic hardness can be achieved.

New Endless Rubber Belt Provides New Power-Drive

A NEW concept of power transmission, the Poly-V Drive, has been introduced by the Manhattan Rubber Division of Raybestos-Manhattan, Inc., Passaic, N. J. The Poly-V Belt, which is a single, endless rubber belt with a series of parallel V ribs molded lengthwise around the inside circumference, has an uninterrupted, high-strength member of synthetic cords across its entire width.

The Poly-V sheave grooves are designed to mate precisely with the belt ribs, and since the belt covers the full width of the drive member (not an assembly of several V-belts), the load is distributed equally over the entire driving surface. This provides twice the contact area of a comparable multiple V-belt application so that Poly-V Drive gives up to 50 percent greater horsepower with the same width or equal horsepower with ⅓ less sheave width.

Design features of the Poly-Drive reduce face pressure one half, giving longer life to belt and sheaves. Also, the full drive width and the total traction surface contact prevents belt turnover and progressive sinking in sheave grooves.

Poly-V belt is ribbed lengthwise to mate precisely with the entire surface of the sheave grooves.

One of the most important features of the new drive is that it eliminates belt matching problems common to multiple V-belt applications.

New Railroad Car For Shipping Dry Ice

THE first of a series of all-steel, insulated railroad cars of advanced design for the shipment of dry ice, has been started in service by Mathison Chemical Corp. The cars will transport dry ice, packaged for delivery to consumers, from the Saltville, Va., plant, to 15 Mathieson warehouses throughout the U.S.

George B. Armstrong (left) manager of Mathieson Chemical Corporation's carbon dioxide operations, inspects the first of a new fleet of dry ice cars which the company has developed to deliver packaged dry ice to distribution points. With Mr. Armstrong are J. W. Collyer (center) of Mathieson and J. J. Quinn (right) of the Fruit Growers Express Company.

The 54-ton car, built by Fruit Growers Express Company at Alexandria, Va., has 20 percent greater capacity than the standard dry ice car. Among its new features are improved insulation, roller bearings to forestall transit delays from journal failures, and a modified Duryea underframe to reduce transmission of stock to the car body.

Battery Operated Worklifter

A BATTERY operated "worklifter" has been introduced by Economy Engineering Co., Chicago, Ill. Power is derived from two heavy duty batteries connected in series, and operates continuously all day long or several days intermittently. Recharge is made through a built-in charger for 110-volt plug-in. Circuit breaker protects it from overcharge. Rated at 750 lbs. this unit has a maximum safe capacity of 1100 lbs. Stands 6 ft. 6 in. with lift operating from 5¼ in. above floor to 5 ft. Base frame is 23 in. wide x 39 in. long; platform is 24 in. square steel plate with 17 in. high backplate. Wheels are: two 8 in. dia. solid rubber swivel casters and two 5 in. dia. solid rubber fixed wheels, all equipped with roller bearings. Has foot-operated floor lock. Hoist unit is an electric-hydraulic gear operated pump, giving constant flow to ram, with pushbutton control for precise raising and lowering.

Automobile Cooler

A NEW automobile air conditioner has been designed and placed on the market by the Inter-Mountain Products Corporation, Fort Worth, Texas. It uses ice as the cooling agent, with fan connected to dashboard of the car. The unit is fully insulated and has an automatic drain to carry off the water as the ice melts.

Air Conditioner Installed in Automobile

EXPERTS LIKE TO DO BUSINESS WITH EXPERTS

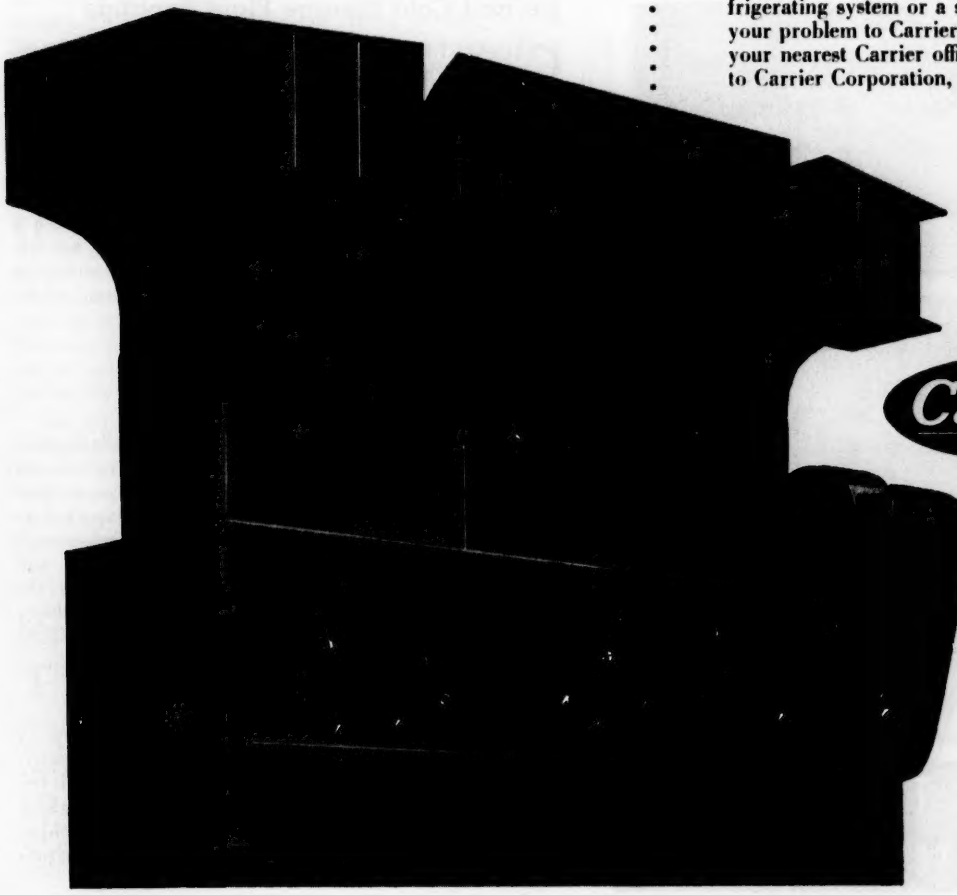
HORMEL CHOOSES CARRIER AMMONIA REFRIGERATION

Three Carrier centrifugal ammonia condensing units with a combined capacity of 1600 tons, and some 200 Carrier cold diffusers have been installed in the Geo. A. Hormel Company main plant at Austin, Minn. For its refrigeration requirements, Hormel, expert at food processing, has called on Carrier experts ever since 1936.

Carrier ammonia refrigerating equipment is on the job in food processing plants, large and small, the world over—serving companies like Dole Pineapple, Honolulu; Arbogast & Bastian, Inc., Allentown, Pa.; Merchants Refrigerating Company, Hopkins, Minn.

May we assist *you?*

Whether you need a complete ammonia refrigerating system or a single machine, bring your problem to Carrier's experts. Telephone your nearest Carrier office. Or write directly to Carrier Corporation, Syracuse, New York.



ammonia refrigerating systems

Carrier

THERMOBANK
FOR
Ammonia
by KRAMER
THERMOBANK
the defrosting system that makes Ammonia SHINE!
LUCERNE MILK COMPANY, of Los Angeles, Calif., modernized with KRAMER AMMONIA THERMOBANK automatic defrosting system to end years of expensive manual defrosting.

"BEFORE" photo shows iced condition of the old overhead coils.

"AFTER" photo, same room, modernized with KRAMER Ammonia THERMOBANK at minus 25° F; 6400 gallons hardened daily.

INSTALLED BY ASSOCIATED REFRIGERATING ENGINEERS, LOS ANGELES, CALIFORNIA.

WRITE NOW FOR BULLETIN TA-182

KRAMER TRENTON CO.
Trenton 5, N.J.

PRESS BRIEFS

Pacific Fruit Express Awards Safety Plaques

ANNUAL awards of safety plaques by the Pacific Fruit Express Company to nine of its 17 ice plants were made recently. The nine plants worked a total of 1,036,684 hours without an accident in 1953. Leroy Etzel, superintendent of refrigeration, made the awards.

The plants receiving awards and plant manager, with hours worked were: Ogden, Utah, R. F. Jones, 212,408; Council Bluffs, Iowa, D. F. Schuffler, 203,408; North Platte, Nebr., P. S. Toay, 132,360; Pocatello, Idaho, H. A. Shupe, 131,608; Los Angeles, Calif., E. T. Quinn, 128,080; Tucson, Ariz., H. W. Barrett, 122,080; Las Vegas, Nev., A. J. Scott, 55,664; Visitacion, (S. F. Calif.), R. E. Gilkison, 28,020; Gerber, Calif., A. B. Phillips, 22,696.

The Safety Department for Pacific Fruit Express Co., is under direction of J. P. Ferron, superintendent of safety, and K. V. Plummer, vice-president and general manager. All 17 plants of this UP-SP RR Subsidiary, rolled up a total of 2,454,668 man hours in 1953 with only 18 reportable accidents. This is considered a remarkable record considering around the clock work in all types of weather. Council Bluffs is a two-time safety winner; also Pocatello, Los Angeles and Tucson. Las Vegas and Visitacion won twice in a row, while Gerber has won four in a row.

Ice and Cold Storage Plant Expands

CONSTRUCTION of a $100,000 addition to the Albany Ice & Cold Storage Company plant on the Pacific highway half a mile south of Albany, Ore. will be started immediately by the Cutts Construction company of Lebanon, awarded the contract from among 11 bidders.

The 98 x 120 foot reinforced concrete structure will more than double storage capacity of the Albany Ice & Cold Storage company's two plants according to Jess Salvage, company, president, and will augment service to food processing plants at Albany and Stayton, whose products the local firm has been handling.

Hotel Converted Into Air Conditioned Offices

THE 42 year old Ritz Carleton Hotel, Philadelphia, Pa., will close its doors July 1, to be converted into an air conditioned office building. It involves a three million dollar remodeling program and is expected to open September 1955 as the Pennsylvania Lumbermen's Mutual Insurance Building. The insurance firm will have its headquarters on the second and third floors, the street level will be rented to stores, and the upper floors will be rented as offices.

Ice Company Wins Damage Suit

A JUDGMENT of $2,214.33 has been returned in favor of the Huntsville Ice and Coal Company, Huntsville, Alabama. The Ice Company had sued the Bayliss Machine and Welding Company of Birmingham for damages allegedly incurred when a freezing machine purchased from the Birmingham firm failed to operate properly during the summer of 1951.

Gas Fells Fire Fighters At Yokahama Warehouse

THREE Americans and 25 Japanese collapsed from gas poisoning while fighting a fire early in March at the Cold Storage Warehouse of Camp Yokahama, an army installation. All have since recovered. The chief editor of the Yokahama Bureau, Noboru Ono, the Yomiuri Shimbun, reported that two types of gases were present. He states that there was definitely an ammonia concentration in the air at the fire.

Doctors examining the men who collapsed fighting the fire also pinpointed a second gas. This, they reported, was a gas given off when the cork insulation in the building was burned. It caused a secondary, rather than a primary, reaction, leaving the throats of those affected sore and causing a choking sensation for as much as ten days afterward.

Tulsa City Products Wins Top Safety Award

THE top safety award by City Products Corp. went to Tulsa Cold Storage Co., and Federal Cold Storage Co. in Pittsburgh and Cleveland received second and third places, respectively. Awards were based on non-lost-time accidents during 1953. Sixteen plants participated. This was Tulsa's first win since 1937. Their last lost-time accident was July 4, 1952.

Members of the Safety Committee in the Tulsa plant were Geo. L. Hancock, General Manager; Geo. H. Koehne, Chief Engineer; A. L. Wright, Supt. of Warehouse; Don Ramsey, Supt. of Icing Station; Oscar Moody, Truck Driver Boss and Fred S. Barbee, Office Manager. The head of the Safety Department for City Products Corporation is A. H. Schultz, Chicago.

Wall Collapses At Ebner Plant

PART of a brick wall on the west side of the old Ebner Ice and Cold Storage building, Vincennes, Ind., collapsed leaving only a one-inch wood wall on that side for insulation of ice-making equipment and storage being used by the new Ice Service Corporation of Vincennes. Owners of the new ice company were meeting in Vincennes to look over the damage and to plan for their activities in the immediate future.

The building at Sixth and Depot streets, which the ice company will occupy, is not yet ready for use. However, in any event, ice will be available for consumers in Vincennes, the company announced, whether arrangements can be made to stay in the Ebner building or not. In emergency ice could be hauled to the city.

Municipal Ice Plant Sold

THE Municipal Ice Plant, Ripley, Tenn., has been sold to Paul Downs of Caraway, Ark., who will dismantle the plant and transport it to Texas to supply ice needed by shrimp boat fleets. He has purchased a number of other plants in the mid-south for this purpose. The plant was sold for $8,500. The Ripley plant had a net loss for 1953 of $4,481.43. Despite an increase in rate to 70 cents per 100 pounds, the operation was still in the red and prospects for improvements were scant.

From Any Angle!

Easy-reading Taylor Industrial Thermometers invite frequent readings for better protection of your equipment.

For Cold Water and Brine Lines, Insulated Brine or Ammonia Lines, Condenser and Water Lines, Hot Water and Steam Lines, Ammonia Discharge Lines, Brine Tanks and Cold Storage Rooms. Wide selection of bulb and stem styles and angles. Ranges from −40° to +950°F. or equivalent Centigrade. Rattle and dust-proof cases. Three-times easier-to-read BINOC* tubing.

For insulated brine or ammonia lines
Insulated stem, straight (shown) or 90° angle. Range minus 40° to +110°F.

For cold storage rooms
Straight or 90° angle (shown). Supersensitive bulb for air and gas temperature measurement. Range minus 40° to +110°F.

For brine tanks
Oblique angle (150°) designed for easy reading below eye level. Range minus 40° to +110°F.

For small diameter brine or ammonia lines
½" fixed thread connection. Stem extends 1" below the thread. Range minus 20° to +120°F.

There's a Taylor Thermometer for practically every temperature measuring problem. Ask your Taylor Field Engineer, or write for **Catalog 300.** Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada.

Instruments for indicating, recording and controlling temperature, pressure, flow, liquid level, speed, density, load and humidity.

*Reg. U. S. Pat. Off.

TAYLOR INSTRUMENTS MEAN ACCURACY FIRST

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$10,000 GUARANTEE ON USED EQUIPMENT!

Never before a guarantee like this! Only your CATERPILLAR DEALER offers a "BONDED BUY" on used Caterpillar-built equipment backed by a bond of $10,000.

Your Caterpillar Dealer now offers you a "BONDED BUY" on used Caterpillar Diesel Engines and Electric Sets backed by a bond of $10,000 issued by The Travelers Indemnity Company. This protection is yours when you purchase a "BONDED BUY" machine.

This is the *first* time in the heavy-duty engine field that such an offer has ever been made!

You are also offered two other classes of used equipment buys—"Certified Buy" and "Buy and Try." These cover used units of *any* make.

What does this mean to you? *It takes the guess and gamble out of buying used equipment.* You know what you're getting. Your assurance is in writing. What's more, *no matter what your needs, cost-wise or work-wise,* you have a *choice* to meet them.

Only your *Caterpillar Dealer* offers you this across-the-board selection. The best source of new engines, he's also your best source of used engines. Whether you're in the market for one or many, he's the man to see for your *best* buy. See him today for complete details on guaranteed used engines and electric sets!

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

DON'T GUESS OR GAMBLE ON USED EQUIPMENT

You KNOW what you're getting at your CATERPILLAR DEALER

Your Caterpillar Dealer offers you three clear-cut classes of used equipment. He backs each one in writing. You buy with confidence, sure that the equipment is honestly described. See him for the best values on the market!

(1) "BONDED BUY" Only the best in used Caterpillar Engines and Electric Sets. Each "BONDED BUY" machine is backed by a Dealer's Guarantee Bond equal to the purchase price of the unit up to a maximum of $10,000. This provides a guarantee for thirty days against unsatisfactory performance due to defective parts. If a part should prove defective within the guarantee period under the normal conditions of your job and with proper maintenance, your dealer will put your unit back into operating condition *with no charge to you for parts and labor* up to the amount of the bond. The Dealer's Guarantee Bond is backed by The Travelers Indemnity Company. Your Caterpillar Dealer gives you this protection with your purchase of a "BONDED BUY" unit. Look for the "BONDED BUY" symbol—it's your assurance of the best in used engines or electric sets.

(2) "CERTIFIED BUY" Next best buy in used equipment! "Certified Buy" covers units of any make in good condition. Your performance guarantee is in writing backed by your Caterpillar Dealer.

(3) "BUY AND TRY" Bargains in used engines of any make. Buy and try them for a period mutually agreed upon by you and your dealer. Each "Buy and Try" unit carries his written "money-back" agreement.

"BONDED BUY" assurance effective in the United States

CATERPILLAR

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BEST BUYS IN NEW AND USED EQUIPMENT

Copr. 1954, C.T. Co.

DIESEL ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

In the Spotlight

COLD STORAGE DOORS are being designed today to meet the needs of frozen foods which have to be held at considerably below zero. One major change was brought about by mechanized handling with resulting need for wider and higher doors. These and other aspects of the new demand are discussed and illustrated in the article starting on page 15.

THE NATIONAL association of Ice Industries, to bring its members and the industry up to date on the service available, has held a series of group meetings over the country, directed by members of the association staff. A report of two of these meetings will be found in the article on page 18.

REFRIGERATED Warehousemen, meeting at beautiful Boca Raton, Florida for their sixty-third annual convention April 25-29 directed their attention toward current problems and other topics of interest through panel discussions and panel speakers. A record number of members and guests were present and interest was high at all of the sessions. A membership meeting of The Refrigeration Research Foundation was held the day before the opening of the N A R W sessions. The American Warehousemens' Association met at the same time in conjunction with the N A R W and the Merchandise Division. Reports of these meetings start on page 19.

THE FEASABILITY of increasing an inadequate water cooled condenser capacity by adding an air-cooled gas desuperheater between the discharge manifold and the watercooled condensers is answered in the article on page 34, a discussion prompted by NAPRE Question Box, question number 996.

SPACE EATING features such as slow moving elevators, long halls and numerous corners have been eliminated in a remodeling program at the Merchants Ice & Cold Storage plant at San Francisco, Calif. The new addition has 600,000 cubic feet of storage and freezer space. Two more similar units will be added to the existing building, to occupy one square block. The complete improvement program is described and illustrated in the article starting on page 30.

ADDITIONAL PLANS for the annual NAPRE convention to be held November 2 through 4 at the Roosevelt Hotel, New Orleans, has been announced. For details see article on page 40.

REPRESENTATIVES of the industrial refrigeration fields attended a National Occupational Safety Conference convened by President Eisenhower. For a report on this Conference, see page 46.

FROZEN game birds (quail, pheasants and partridges) consumed by Americans have increased tenfold in the last five years. Hardly any of them contain buckshot. They are raised by breeders for killing and freezing. So far most of the game birds have been sold by advertising and direct mail. If, however, the market continues to grow at the rate of the last five years, frozen game will become a logical item for food stores. The gross margin is probably a wide one.

NEW EQUIPMENT listed in this issue includes an electric penny refunder for vendor machines, new load limitor for elevators, closing machine for paper ice bags, residential air conditioning unit, device to check pressure sealed systems, low temperature chambers for cold treating metals, new railroad cars for shipping dry ice, battery operated work lifter, automobile cooler and protective tape coatings. See pages 4, 6, 7 and 8.

THE ANDREWS Cold Storage Inc., Prosser, Wash. has been sold to a group of local business and professional men, as told in the article on page 46.

DUAL TEMPERATURE pipe insulation is designed to give maximum efficiency to pipe lines operating at low temperature or at alternate cycles of high and low temperature. For description see page 50.

FROST HEAVING of cold storage ground floors is a serious problem to many warehouses operating such rooms, particularly if they are freezer rooms maintained at a low temperature. This question will be discussed in a future issue of Industrial Refrigeration.

THE NEW air conditioned bus terminal in Chicago was used by more than two million travelers during its first year. Strictly modern, this new terminal is completely air conditioned. An article with pictures and description will be published in a future issue of Industrial Refrigeration.

Eskimos Use Ice Windows

AN airlines manager at Fort William, Ontario said it gave him "quite a start" his first night on the Belcher islands in Hudson bay to see lighted windows like a small town. In daylight he had seen nothing but a desolate waste of ice and snow. The lighted windows were in Eskimo igloos. "They make their windows with a clear sheet of ice," he explained.

For only about 1¢ A TON

Yes, for only about a cent a ton you, too, can use TEMPLETS in making clearer and stronger ice faster—ice with a polish. That's all it costs—it's surely economical.

TEMPLETS, the famous green ice-tempering tablets that have been used for years in ice plants throughout the country, enable you to produce clearer ice . . . ice with fewer white butts, heavy cores, or cloudy veils. TEMPLETS also produce stronger ice because they reduce the tendency of ice to break, check and crack during cutting and scoring.

TEMPLETS help make ice faster during the peak summer months in the same number of cans you now use, because TEMPLETS make it possible to freeze raw water at lower brine temperatures, thus enabling the use of the same cans more frequently.

But why not find out for yourself what TEMPLETS can do by trying them, at our expense, in your own production? Send the coupon below for FREE samples today. Once you try TEMPLETS you will like them and continue their use indefinitely.

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Send This Coupon For Your FREE Sample Today!

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Please send me a free sample and literature on TEMPLETS.

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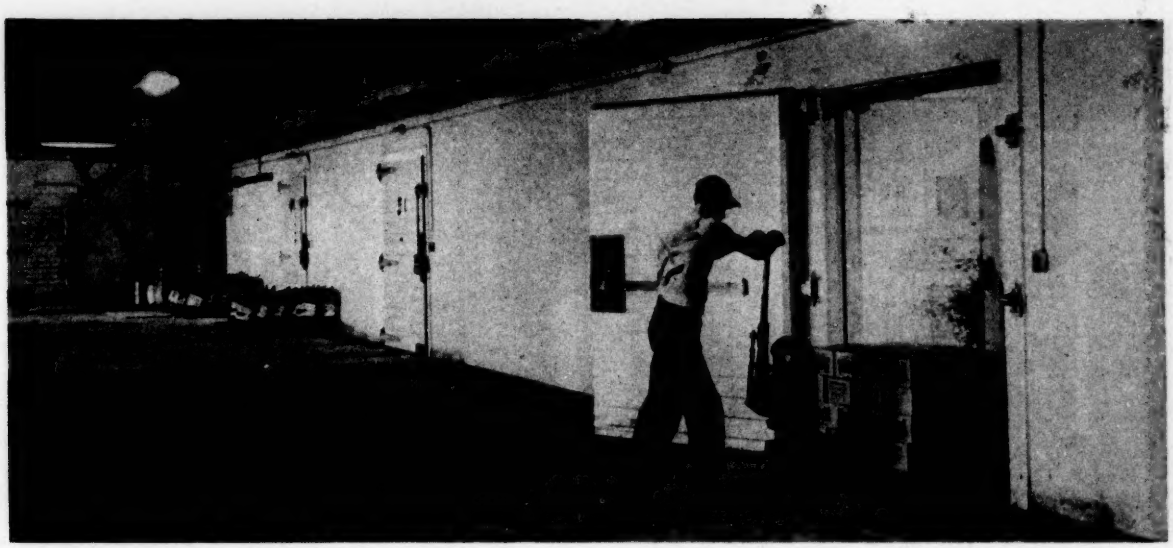


Vestibule door opens wide at cold storage warehouse of Associated Grocers of Oklahoma to permit passage of extra wide hand cart. Notice the bump open bar on the heavy, outside portion of the door.

Cold Storage DOOR Design In Step With Modern Warehouse Methods

FROZEN foods have produced not only a minor revolution in the American kitchen, but also a distinct change in the techniques of cold storage warehousing.

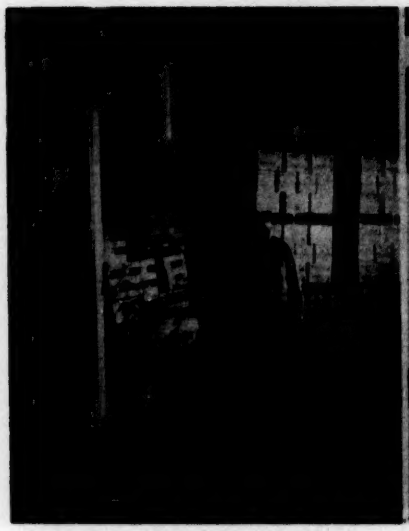
Before their current wide-spread popularity, frozen foods took up only a relatively small amount of the space used by cold storage warehouses. Furthermore, these warehouses rarely refrigerated any food products at temperatures much below zero. The temperature range for most warehouses was anywhere from 0 F or a few degrees colder to about 40 F.

Now, according to the Jamison Cold Storage Door Co., Hagerstown, Md., the situation is quite in contrast to what it had been. Many important changes have been made in warehouse methods to safely and economically preserve frozen foods.

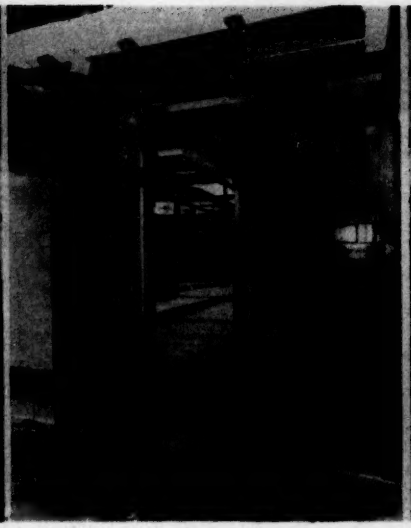
The basic need for storage at

Moving pallet loads of barrels such as this in and out of cold storage rooms at the Omaha, Nebr., warehouse of U.S. Cold Storage Corp., would be impossible without use of extra large cold storage doors.

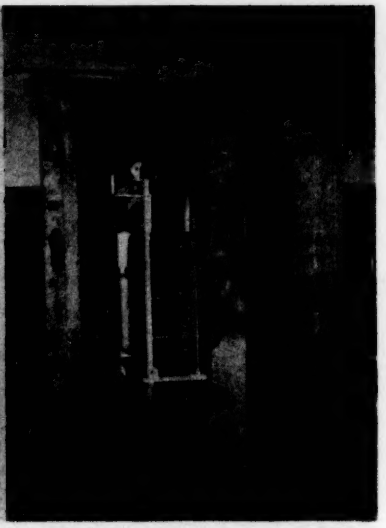
Fork-lift trucks such as this one permit rapid movement in and out of the cold storage rooms at the City Ice Co., Denver, Colo. This is a double door installation built to accommodate large handling equipment.



Six-by-nine-foot door provides ample height for passage of electric trucks and easy handling of hand trucks at the Grand Union Stores Warehouse, Carlstadt, New Jersey.



Modern Jamison track doors such as this speed handling and thus save refrigeration costs. The overhead monorail permits free and easy passage of the trolley. Doors are installed at Safeway Stores, Kansas City.



Metal clad vestibule super freezer door installed at the Merchants' Refrigerating Co., Jersey City. The truck in the picture is loaded with frozen orange juice. The batten door was swung back to get a better picture.

lower temperatures has been fulfilled. Certain types of cold storage doors are designed today to handle frozen foods at temperatures considerably below zero.

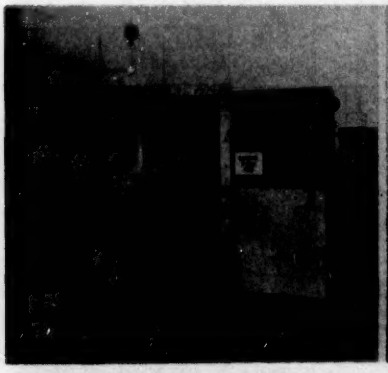
New Design of Doors

Fundamentally, the allocation of more and more space to the storage of frozen foods has had two major effects on the design and structure of cold storage doors for warehouses. With the increased volume of frozen foods came an increase in labor rates, and subsequent rise in costs. So it then became advisable to further mechanize food handling procedures. This led to the increased use of fork lift trucks, big electric trucks, pallets and similar equipment. Using such mobile materials handling equipment, of course, resulted in faster, easier handling and lower costs . . . but only after redesigning the cold storage doors.

The first major effect then was to focus on the need for wider and/or higher doors to accommodate the motorized handling equipment. Since it was both possible and cheaper to move huge loads in and out of the warehouse with this equipment, there was a definite advantage in having larger size doors.

To provide the extra space required for mechanical handling equipment, many cold storage warehouses have installed large double doors. These and other large cold storage doors built for the passage of fork lift trucks range in size from 7 ft. 6 in. to 10 ft. high and over, depending on the type of equipment used and pallet loads.

Rooms used for the storage of



Bumper attachments of spring steel on both sides of this vestibule door cushion the shock of electric trucks carrying loads in and out of cold storage. Installation is at Safeway Stores, Oklahoma City.

Mechanized handling with fork lift trucks such as this speeds the movement of merchandise and simplifies storage. Specially designed cold storage doors are needed to accommodate such equipment.

Mobile handling equipment and large cold storage doors for efficient and economical storage of foodstuffs at the U.S. Cold Storage Corp's new plant in Omaha, Nebr. Of the 26 Jamison doors, 22 open into loading dock.

frozen foods are usually kept within a temperature range of from 0 F to −20 and −30 F. The temperaure outside the storage rooms is generally between 65 and 68 F. This means that the difference between the inside and outside temperatures is anywhere between 65 and 98 F. Such a vast temperature difference would increase operating costs if doors had to remain open for any period of time.

Therefore, the second major effect of increased frozen food storage was to spotlight the need for cold storage doors that would minimize the loss of refrigeration during the transfer of loads in and out of the storage rooms.

With standard doors, there was no way of preventing the rush of warm air into the cold storage room and checking the escape of cold air from the cold room while moving loads in and out. For such cases of low temperature refrigeration, the answer was the vestibule type of cold storage door.

This type of door minimizes the escape of cold air from rooms during in-and-out traffic, thus producing substantial savings in refrigeration costs. While the cold storage door in the vestibule assembly is open, the batten doors in the assembly furnish at least a partial barrier to the outside heat. They swing shut and confine the cold air in the storage room as soon as someone passes through the doorway.

Eliminating Ice

Provisions have also been made to discourage or actually prevent the formation of ice around the top, sides and bottom of the doors. One way of doing this is to introduce heated air into the airlock. The temperature in the airlocks can be held at approximately 25 F simply by means of circulating air inside them. Another method is by the use of heater coils. They have been used with great success to discourage icing where doors come in contact with the frame.

In a growing number of installations, cold storage doors are used exclusively as entrances or exits to the same room. Instead of just one door to serve as both entrance and exit, the trend now is to use two doors . . . one as an entrance only, and one for use only as an exit.

At no sacrifice in refrigerating efficiency, this arrangement is very helpful in expediting the flow of merchandise in and out of the cold storage room. Such an installation permits the ready use of floor curbing to guide the trucks to the center of the doorway. This protects the merchandise from the danger of bumping and eliminates the chance of damaging the door hinges.

The many adjustments made to meet expanding cold storage requirements would be to no avail if improvements in cold storage door efficiency did not keep pace. Doors now in use are much improved over the older models that formerly served as standard equipment.

Andrews Cold Storage Changes Hands
Expansion of Facilities Planned

THE Andrews Cold Storage Co., Inc., Prosser, Washington, formerly the Prosser Freeze Plant, has been sold by Clyde Andrews to a group of local business and professional men. Started in 1946 in the rapidly expanding lower Yakima Valley, the plant expanded from a few hundred tons of freezing that first year to more than 4000 tons in the 1953 season.

Following a heart attack in October 1953, Mr. Andrews disposed of the operation. The new corporation consisting of Maloy Sensney, president, Dr. Bjorn Lih, vice-president, Maurice Kirkpatrick, secretary-treasurer, Dr. Roy McCartney and Dr. Mark Petersen, Directors, expect to expand the facility.

Plans for 1954 include construction of a new freezing tunnel with a capacity of three tons per hour and additional packaging and casing space for Prosser Packers, Inc., principal tenants. Contracts have been arranged for the processing and freezing of approximately 6000 tons. Asparagus, peas, corn, lima beans and peaches will make up the bulk, with grape juice concentrate, apples and prunes added when available. Many nationally recognized labels including Pictsweet Snow Crop, Bel-Air and Dulany are handled in addition to the Zero Kist label of Prosser-Packers, Inc.

Unusual Designs

Space limitations have made necessary some unusual designs in the construction planned. Existing storage buildings are at dock level and the processing building is at ground level. Since future plans include an additional 80 x 112 ft. storage building at dock level, it was decided to construct the new facility at a basement level, providing 16 feet ceiling height for the freeze tunnel and for filling and packaging equipment. Sorting, grading, washing and blanching will be done in the ground level processing building. Products will then be flumed or conveyed to the adjacent basement room for packaging and freezing.

High speed filling and packaging equipment will be installed, as well as custom built equipment especially designed for automatic loading and unloading of trays. Tray rocks will be suspended from an overhead rail system and mechanically moved from station to station and through the freezing tunnels. Niagara No-Frost coils are to be installed in the tunnels. Air circulation is 80,800 cfm at 1½ inch static pressure, by four Sturtevant axi-flow blowers. Product to be frozen will move through the tunnels counterflow to the air.

Investment will be approximately $60,000 in building and refrigeration equipment, and $40,000 in packaging and other mechanical equipment. Installation of the processing equipment is under the direction of Merton Vance, master mechanic for Prosser Packers, Inc., while building construction and refrigeration equipment is being supervised by Quaid Minich, general manager of Andrews old Storage Co., Inc. Mr. Minich was formerly chief engineer for Bercut Richards Cold Storage Co., Sacramento, California, and more recently district engineer for Niagara Blower Co., Seattle.

New Wisconsin Corporation

THE Wausa Cold Storage Co. has been incorporated at Wausau, Wis., with an authorized capital stock of 1,250 shares of common of no par value. Incorporation papers were signed by Francis and Marie Rondeau, the former being named as the registered agents for the corporation, at 832 N. Cleveland Ave., Wausau, Wis.

National Ice Association Brings Service to Members in Series of Group Meetings

TAKING the National Association Office Industries to the industries and to the members, a series of group meetings have been held throughout the country directed by members of the association staff. The idea was formulated at the Mid-winter meeting of the executive committee acting upon the suggestion of President Paul Andres.

Mr. Andres said that during the Annual Convention in Washington last Fall he was deeply impressed upon with the idea of how much greater and how more valuable the national association services to the industry could be if more members could attend the sessions and actively participate in the discussion meetings. He expressed the opinion that the association's most important purpose is to serve as an information agency, from which new methods, new uses and successful operating practices within the industry may be created for and disseminated to the members.

He said the association has done a splendid job of providing various services to the members, but he thought these facts should be emphasized. All of these activities are adequately recapitulated each year at the national convention. The chief difficulty, however, is that only a small part of the total members and a much smaller percentage of the entire industry get this first-hand information.

Program Localized

It was to overcome this condition that the decision was made to localize the program and take it to the ice men of the country. The real purpose of these conferences, it was explained in an ice news letter, is to more effectively serve the ice industry. The meetings also, it was thought, would enable the officers of the association and the members of its staff to find out what the members want and permit all members to have a hand in the planning of the association's program. All meetings were round table discussions with the agenda planned to meet the needs of the area.

Meetings have been held at Oklahoma City, St. Louis, Memphis, Biloxi, Cincinnati, Chicago, Dallas, Houston, Denver, Atlanta, Boston, Miami and Raleigh.

The St. Louis Meeting

The St. Louis meeting was presided over by Richard Muckerman, vice-president of the National Association and the Washington staff was represented by Guy W. Jacobs, Executive Secretary and C. P. Austin, Director of Engineering, Research and Marketing.

Mr. Jacobs described the organization set-up of the national association, the duty and functions of the committee and departments. Mr. Austin explained the program of his department, what had been done and what was expected to be done in the future.

Following these presentations the meeting assumed the conference type designed to develop discussion of the members and presentation of problems confronting the industry which centered around merchandise, marketing and distribution. It was pointed out that icemen can no longer sit at their desks and wait for someone to call but must get out and actively merchandise their product. To lower the cost of processing ice, full advantage should be taken of labor saving devices, including a new look at the assembly line, utilization of conveyors and where possible of automatic bag fillers and sealers, storing and loading.

Road signs should be erected on highways, advertising vending stations, beginning some distance from point of sale, telling all concerned where they can get ice. For the purpose of attracting truck business, in addition to road signs, some members are distributing cards giving location of ice supply to restaurant and other places where truck drivers congregate.

The Chicago Meeting

On hand at the Chicago meeting to direct the discussion and to answer questions were George Steers, Jr., past president and treasurer, Guy W. Jacobs, executive secretary and C. P. Austin, director of research and marketing. The meeting was held May 6 at the Sherman Hotel. Discussions centered around the problem of making ice more readily available to the buying public, new uses for ice, and suggestions as to what additional help or services the association can provide the members.

Mr. Steers, who presided, stated the purpose of the meeting and called for a full discussion of problems and new ideas. He explained that out of this and the other meetings they hoped to obtain suggestions as to how the national association can be of more direct benefit to the members.

Mr. Jacobs established the basis for questions and discussion by enumerating and explaining, illustrated with slides, the various services provided for its members by the association. In this he gave a complete picture of the type of work carried on by the association. It now has more than 17,000 members, he said.

Among the outstanding services listed were: Development of the wet strength paper bags for ice cubes and crushed ice which has been of inestimable value to the industry; the study sponsored at Purdue University on channel icing for vegetables and contact icing of poultry; icing perishables for local consumption, especially sweet corn and fresh meats; hydro-cooling of peaches, lettuce and other vegetables; use of ice by household mechanical refrigerators; an advertising program in the trade magazines of industries using commercial ice; advertising material including layouts, copy and mats for local advertising; promotional advertising on ice being done by other industries such as the National Food Council, and Swift with iced poultry; meeting adverse advertising referring to ice as old fashioned; methods and suggestions for meeting the competition of ice cube makers; legislative activities and working with government bureaus and regulatory agents.

Commenting on the presentation of this information, which emphasized the value and widespread coverage of the information and service provided by the association, Mr. Steers, opened the meeting requesting comments from the floor.

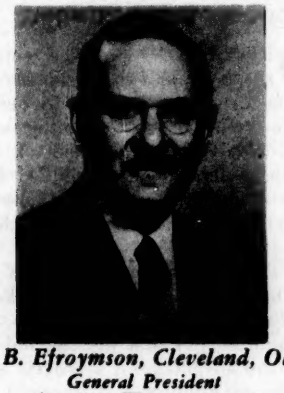
Questions and discussion covered a considerable range of activity, including training for dealer's, car and truck icing, how to make ice more readily available to the public, furnishing an insulated chest for dispensers of ice in small towns, delivery problems, outlet for resale of ice cubes and crushed ice, poultry

(*Continued on page* 49)

AMERICAN WAREHOUSEMEN'S ASSOCIATION

Sixty-third Annual Convention turns attention to relations with National Administration at Washington—Association shows steady growth in membership and service

THE sixty-third annual convention of the American Warehousemen's Association held at Boca Raton, Florida, April 25 to 29 attracted a record registration and attendance of 775 members and guests. General sessions were held Monday afternoon and Thursday forenoon. Aside from routine convention business, interest was centered chiefly on the relations of the association with the National Administration at Washington.



A. B. Efroymson, Cleveland, Ohio
General President
American Warerousemens' Association

Meeting jointly were the two AWA Divisions, the National Association of Refrigerated Warehouses and the Merchandise Division. Also on Sunday forenoon the membership meeting of The Refrigeration Research Foundation was held.

Two high lights of the meeting were addresses by The Hon. George S. Smathers, Jr., U.S. Senator from Florida, and A. B. Drake, a warehouseman, now Director, Storage and Distribution Office of the Assistant Secretary of Defense.

Entertainment

The entertainment program opened Sunday evening with a get-acquainted reception with refreshments, courtesy of the Florida Warehousemen. Tuesday noon a luncheon for the ladies was arranged, at the Cabana Club, followed by a boat tour of Scenic Inland Waterway. Tuesday evening the AWA family party was held at the Cabana Club, with cocktails and snacks followed by a steak fry, entertainment and dancing. Wednesday afternoon the ladies enjoyed a walking tour of the grounds and gardens. Wednesday evening the president's reception was held in the Cloister Lounge of Boca Raton, followed by the 63rd annual dinner in the Patio Royale of the hotel, followed by the usual association business, entertainment and dancing. For the ladies Bingo was arranged Saturday and Monday evenings. Also tea was served Monday through Wednesday at 4:00 p.m. For the golfers, the beautiful Boca Raton golf course was available under the direction of R. A. Robertson, Orlando, Fla. and for the ladies under the direction of Mrs. W. A. Morse of Minneapolis, Minn.

AWA OFFICERS FOR 1954

President: A. B. Efroymson, Cleveland, Ohio
Vice-president: I. S. Culver, San Francisco, Calif.
Treasurer: Wm. A. Morse, Minneapolis, Minn.
Secretary: Wm. Dalton, Washington, D.C.

First Timer's Breakfast

Tuesday morning the First Timer's breakfast was held in the Patio Royale at which George S. Jones, Managing Director of The Air Conditioning and Refrigeration Institute was the featured speaker.

Mr. Jones reminded the warehousemen that it is very important for them to tell the public what they have to sell and where. He who builds a better mouse trap had better put it on sale, where it will be sold, he said, or it will not be sold. Distribution, in which the warehousing industry has a major part, he said, is one of the big reasons for wide and economical use of the many products by the many people who use them. The men in warehousing, he said, should never sell themselves short, but constantly be aware of the place they occupy in the business picture. He suggested as two of their more important activities, a complete analysis of their markets and constantly widening their business contacts.

Introducing the first-timers, A. B. Efroymson, General Vice-president of AWA welcomed them in the association and said it was important that they become identified with the industry and the association now since it provides a prologue for the future in which they, the new timers, will assume more and more the responsibility of carrying on.

Opening General Session

The first AWA session opened with a luncheon Monday noon. At the meeting which followed, Wilford S. Long presided and H. C. Avery of Jacksonville welcomed the members to Florida.

The main feature of this session was an address by the Hon. George S. Smathers, Jr. U.S. Senator from Florida. Mr. Smathers devoted his talk to a practical discussion of what's going on in Washington as it affects warehousemen and business generally. On the question of taxes, he said, all members of Congress are sincerely in favor of reductions all along the line. Contrary to popular opinion, they try to do a sincere job of spending money wisely. He recalled that the National Government voted tax reductions amounting to about six billion dollars and a further reduction is now in Congress, providing for an additional reduction of about two and a half billion. If the Country's economy remains stable and there is no unforeseen emergency, he said, this probably will be passed.

Regarding reduction in government spending, he called attention to the fact that all but about ten percent of the national budget is already allocated under contractual obligations, so that any reduction must be limited to less than that amount. Foreign aid he said should be reduced, although present plans are to spend about the same as last year. Present sentiment in the Senate is to aid only those foreign countries which cooperate with our foreign policy and spend the money wisely.

The taxpayers he said are victims of world conditions and these, rather than the government, will be the de-

termining factors governing any reduction in taxes.

Remarks of General President

Reporting on the work of the association during the past year, Wilford S. Long, general president, said that now, more than ever before, the warehousing industry needs the support and leadership of the Association. To that end, this program had been planned to provide discussion and information on subjects of immediate interest and concern.

The association is larger now than ever before and it is constantly growing. With 24 new members during the year the total is now 953. With this growth in size there is a corresponding increase in its services in integrating and distributing information of value to all. As an instance, a special effort is being made to watch the laws governing warehousing to the end that they be complied with as high a degree of efficiency and lack of friction as possible. In these and other ways the AWA expects to meet the problems of today and plan for the problems of tomorrow.

Warehousing Tomorrow Your Stake at The Pentagon

A factual address of much importance was presented by A. B. Drake, formerly with the Lehigh Warehouse and Transfer Co., Newark, N. J., newly appointed Director Storage Distribution and Disposal Office of the Assistant Secretary of Defense, Washington, D.C.

Mr. Drake discussed his subject from the standpoint of revising the Department of Defense, the problems connected with his new job, and how the association can help. As a former warehouseman, he has a knowledge of the warehousing industry and how it can help in this very important work.

The present administration, he said, is dedicated to the proposition that we must not only strengthen our military security but also preserve our individual freedom and a healthy national economy. In furtherance of this policy men of high distinction and capability have been called into the service of the government. However, they cannot be expected to relinquish permanently their more lucrative positions in private industry and this creates a problem of constantly finding men of leadership to continue the work. He suggested that the association itself should keep this in mind and be able to select men of ability from its ranks to take over suitable positions with the government as the needs arise.

Farewell Luncheon

The AWA farewell luncheon was held Thursday noon in the Patio Royale of the hotel, followed by a closing business session.

The session was opened with introduction of the new officers and members of the executive committees of the subsidiary associations, the NARW and the Merchandising Division. It was announced that Wilson V. Little, for many years secretary of the Merchandising Division and formerly the secretary of the American Warehousemen's Association for many years, was retiring. In appreciation of his many years of service he was presented with a suitable engraved plaque.

Freedom

An address on "Freedom With a Southern Accent," was presented by Thurman Sensing, Nashville, executive vice-president of the Southern States Industrial Council. Mr. Sensing emphasized that we cannot have total security and total freedom at the same time and that peoples of the Country must be reconciled to living within their means. He stressed the dangers of an unbalanced budget and government getting too deeply in debt. Someone, he said, is going to have to pay these debts and if we do not our children will.

In order for our nation to survive it must be strong militarily and economically, and to be economically strong we must once more get back to the attitude that a debt should be treated as a debt and not an asset to be passed on to our children and their children as if we were in no way responsible for it. We must return once more to the habit of living within our means, something we have not done for 20 of the last 23 years.

Resolutions

Resolutions were submitted and adopted expressing appreciation to officers and the membership committee, the speakers at the various sessions, to Senator Smathers for his address at the opening session, and to the convention committee. A special resolution was presented and adopted as follows:

The public refrigerated warehousing industry is a direct beneficiary of the present high rigid price support program for agricultural commodities because it stores millions of pounds of perishables procured by the government under this program.

It is apparent to us that high rigid supports are creating huge surpluses—many of which are stored in our warehouses, which can have no other result than chaos for agriculture or a thoroughly regimented agricultural economy.

Be it therefore resolved that the public refrigerated warehousing industry stands ready, unequivocally and positively, to sacrifice its pecuniary interests for a return to a flexible price support program which will not create huge surpluses and which will return American agriculture to a free and healthy economy in the true American tradition.

Be it further resolved that the NARW commend Secretary of Agriculture Ezra Benson for his courageous statesmanship and farsighted wisdom in recommending a flexible price support program, and, further, that the Congress of the United States be urged to adopt the Secretary's proposal.

Egg Advisory Committee Opposes Price Support

OPPOSITION to price support, surplus removal, or subsidy program for eggs was voiced by the Egg Industry Advisory Committee which met with U. S. Department of Agriculture officials on April 24, 1954. The Committee made the following statement, the full text of which follows:

"This committee believes in self-help, leaving to the industry the solution of its own problems. "It recognizes (1) that the egg industry has the advantage of relatively short cycles of production-correction; (2) that the primary reason for the 1954 production increases and 1954 price declines are and were due to the fact that prices received by producers for eggs during 1953 were extremely profitable; (3) that price is the greatest single factor regulating supply and demand.

"The Committee therefore reaffirms its 1953 recommendations.

"1. The Government should not conduct an egg price support, egg surplus removal, or an egg subsidy program.

"2. That the U.S.D.A. can serve the industry best by immediately intensifying the dissemination of all the facts relating to poultry population and replacements.

"3. That the U.S.D.A. should continue to lend its aggressive assistance toward the improvement of efficiencies relating to all phases of the industry, especially to distribution.

"The Committee wishes to call particular attention to the fact that replacement chicks on farms at the end of the first quarter of 1954 totaled 40 million more than a year ago, a gain of 19 percent for the period.

Annual Meeting Refrigerated Warehousemen Panel Discussions and Review of Progress

FOLLOWING the plan of previous years, the program for the annual convention of the National Association of Refrigerated Warehouses was based largely on panel discussions which have proven of much interest to the members, and productive of much information. These covered the subject of warehouse losses, repair and maintenance, frozen food customers, new business, selling warehouse service, materials handling, and one devoted to general problems. In addition short informal discussions were held Tuesday afternoon on problems in the industry chiefly related to operating problems.

Subjects of current interest were presented by speakers covering the irradiation of foods, the Taft-Hartley Act, Jet air freezing and cost finding.

A number of associate members accepted the association's invitation to show exhibits of their line. Among these were: Freezing Equipment Sales, York, Pa.; Armstrong Cork Co., Lancaster, Pa.; Pittsburgh Corning Corp., Pittsburgh, Pa.; Carrier Corp., Syracuse, N.Y.; V. C. Patterson & Associates, York, Pa.; Snow Crop, Dunedin, Fla.; Insulated Clothing Mfg. Co., New York; Lewis Shepard, Watertown, Mass.; Moto-Truc Co., Cleveland, Ohio; Owens Corning Fibreglas, Toledo, Ohio; International Insulation Inc.; New York; Refrigeration Engineering Co., Los Angeles.

Opening Session

The convention was opened Monday morning by A. B. Efroymson, past president. Mr. Efroymson commented especially on the progress of the Association and the accomplishments of the past year. The treasurers report was made by W. W. Wilson with financial details of the past year.

The President Speaks

To take charge of the convention and to preside at this session President R. M. Conner arrived in one of the new fork lift trucks on display. In his annual address he reviewed association activities during the past year with special reference to the things accomplished and policies covering future work.

During the year he had visited regional chapters and had discussed with them their viewpoints and problems. These chapters, he said, are more active than ever before and this points the way toward more activity on the national level.

The National Association continues in its desire to be of service to its members. And the officers and association staff greatly appreciate that more members are alive to the worth of the association and the information it provides. Outstanding in this regard is the cooperation now plainly evident between the NARW and TRRF in obtaining and making the results of research available. Other accomplishments include the work on insurance, labor problems, cost accounting.

H. C. Diehl, Director of the Refrigeration Research Foundation in a short talk on the Foundation said it had arrived at its tenth birthday this year with accelerated and continuing progress. This he said, is one activity that is related to the entire industry, in which all can benefit. He warned however, that they must all be alert not only from a scientific but also from an economic and political standpoint in the dissemination and use of the knowledge developed by research.

Wm. A. Sizer, Chicago, president of The Foundation commented briefly on the progress made and the prestige created. He expected this progress to continue and its prestige to grow in the future.

NARW OFFICERS FOR 1954

President, W. M. Young, San Francisco, Calif.
Vice-president, John K. Dozier, Houston, Tex.
Treasurer, W. W. Wilson, Brooklyn, N.Y.
Executive Vice-president, Wm. Dalton, Washington, D.C.
Secretary, Joseph Colquitt, Washington, D.C.

Executive Committee: The officers and J. W. Wilkerson, Kansas City, Mo.; E. M. Neylon, St. Louis, Mo.; Richard Doncaster, Holly, N.Y.; C. F. Swanson, Seattle, Wash.; Charles E. Adams, Jersey City, N.J.; R. C. Muckerman, St. Louis, Mo.; Gilbert Stecker, Louisville, Ky.; R. W. Oakley, Jersey City, N.J.; Wm. Ready, Indianapolis, Ind.; Charles Henry, Atlanta, Ga.

In honor of this special occasion, the 10th birthday of TRRF, president Conner presented a birthday cake to its president, which was accepted with appreciation.

Cold Storage Advisory Committee

A report on the work of the Cold Storage Advisory committee was presented by Paul B. Christensen, chairman. He recalled that it had been active for seven years, during which time it has continued to take an active part in forming a connecting link between the refrigerated warehousing industry and the Department of Agriculture. The Department is now in the process of spending about two million dollars in research projects which the committee had revised and approved previously. There are about 150 such projects in all in which refrigerated warehousing has an interest. Among the more important of these are enzyme systems of fruits, time temperature tolerance of frozen foods, chemical estimation of rancid flavors, constituents of fruits, cold storage of seeds, freezing and storage of bakery goods, frozen concentrated whole milk and correct use of refrigeration.

President R. M. Conner arrives to preside at opening session of convention.

R. M. Conner,
Chicago, Ill.
Past president NARW

M. W. Young,
San Francisco
President NARW

John K. Dozier,
Houston, Tex.
vice-president, NARW

Wm. Dalton,
Washington
Exec-vice pres. NARW

Irradiation of Foods

An interesting discussion of the new idea of irradiation of foods was presented by Dr. Bernard E. Proctor, Massachusetts Institute of Technology. This talk presented the latest developments on the sterilization of foods by atomic ray, a revolutionary development in the field of food preservation. This endeavor, he said, is still in the research stage. While much is already known there is still much to be learned. Encouraging results have been obtained and much progress in this field may be expected in the future, he said.

Committee Reports

An important phase of association work is handled through the various committees. Reports on these were made by the committee chairmen.

The committee on insurance, reported by A. G. Janney, Baltimore, Md., stated that most of the committees activity during the past year was concentrated on efforts to get the National Board of Fire Underwriters to separate refrigerated warehouse fires from other warehouse fires in their published fire statistics and preferably to show a further separate break down for public refrigerated warehouses. For this purpose it was decided to make a survey of the industry to gather fire statistics.

Warehouse Operations

The committee on Warehouse Operations, reported by J. C. Irwin, Kansas City, Mo., enumerated articles which had been prepared and submitted for publication in the NARW Cold Facts bulletin. A future study was suggested on electric wiring requirements in refrigerated warehouses, and studies on floor construction with or without insulation, ventilation pipes in the floor and heating systems imbedded in the floor construction.

Defense Liaison

The committee on Defense Liaison, reported by C. E. Adams, Jersey City, N. J. said that the committee had made a specific study of defense needs and this information has been passed on to the membership. However, the committee suggests that each warehouseman prepare himself to prove that his costs are more economical than the government costs, and stand ready by making connections with their local Senators and Representatives to protect the Department of Defense in the abandonment of government owned or operated facilities by pointing out that use of public storage is more efficient and less costly than public storage.

Transportation

For the Committee on Transportation, A. L. O'Conner, St. Joseph, Mo., reported on a number of projects under consideration: In transit damage to protect shipping in tin containers, stopping of truckload shipments for partial loading and unloading, construction of doors on refrigerated cars so as to be large enough for palletized equipment, criticisms of refrigerated warehouses for slow handling of mechanically refrigerated cars, recommendations of USDA Research and Marketing Transportation Advisory Committee relative to the expansion of studies of improved and cheaper shipping containers for frozen fruits, vegetables and poultry.

Warehouse Operations

The committee on Warehouse Operations by F. H. Prusa, Cleveland, Ohio, reported briefly on a meeting held with a committee representing the National Association of Frozen Food Packers to ascertain what the frozen food packers require and expect from the warehousing industry. Chief efforts of the committee at this time are to arrive at some withdrawal delivery form accepable to the industry and to the frozen food packers.

USDA Liaison

The USDA Liaison Committee, reported by Herbert Farnsworth, Boston, Mass., said that during the year the Department of Agriculture has modified its requirements for the performance bond and while the bond has not been eliminated, and it does not now appear likely that it will be eliminated, provisions are somewhat less onerous than they were a year ago. The Warehousing Guide Book has been withdrawn from general circulation pending revision.

Membership Committee

The Membership Committee, reported by Harold Emerson, Bridgeton, N. D., stated that NARW membership is now at an all time high. As of April 1, 1954, the overall membership, including regular members, branches, associates and honorary amounted to 502, broken down as follows: Regular — 348, Branch — 116, Associate — 26, Honorary — 12.

Legislation

The Committee on Legislation, presented by Philip G. Kuehn, Milwaukee, Wis., recognized that compressional actions change very little under different administrations, the proportion of liberals and conservatives remaining about the same. Of special interest to refrigerated warehousemen at this time is the agricultural situation. The amount to be spent on agricultural research has been increased about a million dollars but some of this will be used for market research, which may turn into government money being used for new refrigerated space. Labor leaders have apparently abandoned the idea of repealing the Taft-

Hartley Law, but are working on revisions which would make it less effective.

Cold Storage Reporting

Reporting for the committee on Cold Storage Reporting, E. E. Hesse, Chicago, Ill., said that the committee had met to deal with a request for amplification of turkey classification which has been abandoned. Mr. Hesse also presented a report of the committee on the proposed uniform commercial code. The committee is concerned now chiefly with Article 7 and a partial comparison of this article and the Uniform Warehouse Receipts Act was prepared by the Washington office and distributed to the members in January. The subject has been especially active in New York State where a state law revision commission has been holding hearings on the code preparatory to the study and report to the Governor and the Legislature. The State of Pennsylvania adopted the code April 6, 1953.

Safety

The report of the Committee on Safety, presented by A. R. Carstensen, Sacramento, Calif., reported in some detail the work performed by the committee including a safety survey of the industry. The committee has endeavored to project its course of procedure into future years and it is felt that a continuous job of selling top management on safety is essential for the next few years.

Safety Awards Presented

Awards for outstanding safety record were presented to 30 refrigerated warehouses. In presenting the awards, Mr. Carstensen, pointed out that the safety award program is the step in an extensive campaign to produce safety conditions throughout the industry. The companies receiving these awards were:

California: California Consumers Corp., Los Angeles; Merchants Cold Storage Plant, Los Angeles; Pacific Cold Storage Inc., Los Angeles; National Ice & Cold Storage Co., Marysville; Holly Cold Storage Co., Oakland; Pomona Cold Storage Plant, Pomona; National Ice & Cold Storage Co., Riverside; Union Ice Co., San Jose; National Ice & Cold Storage Co., Stockton; National Ice & Cold Storage Co., Yuba City.

COLORADO: Greeley Ice & Storage Co., Greeley; Holly Cold Storage Co., Oakland.

IOWA: Kohrs Cold Storage Co., Davenport.

KANSAS: Federal Cold Storage Co., Kansas City.

MARYLAND: Merchants Terminal Corp., Baltimore.

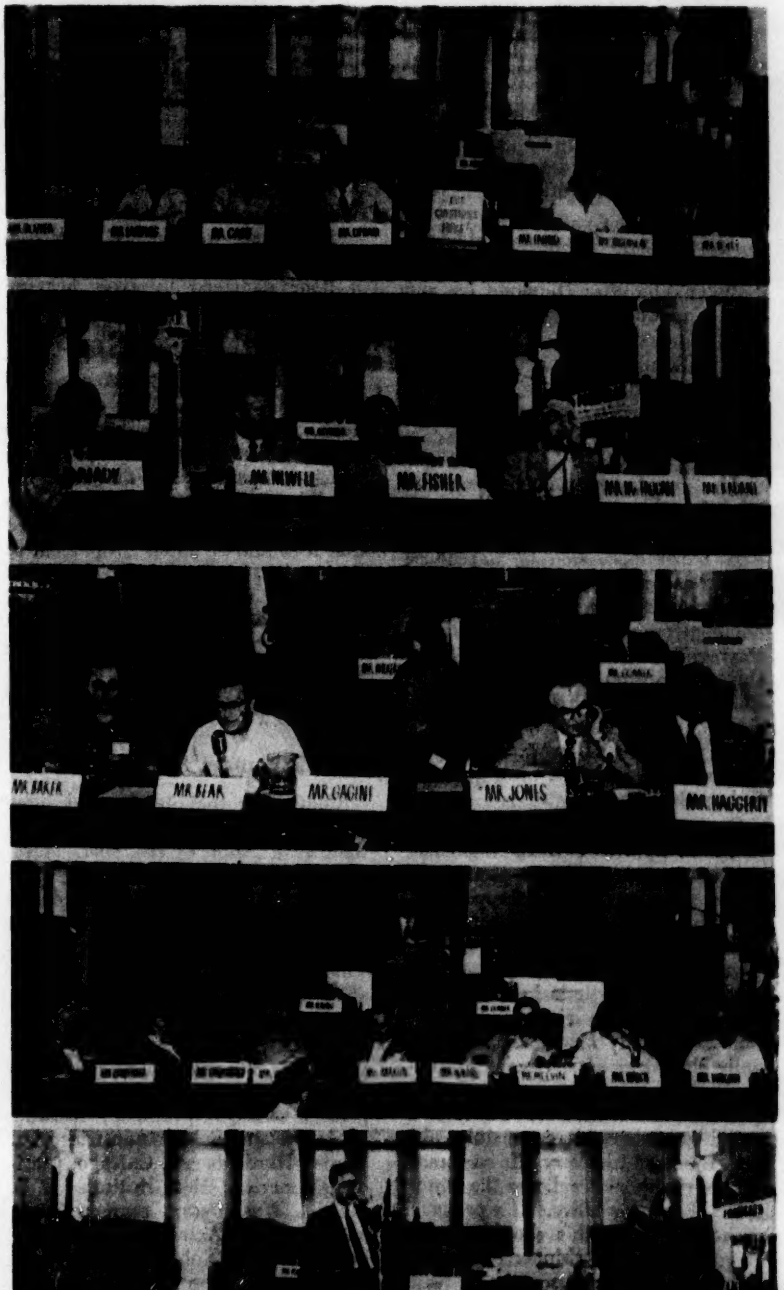
MASSACHUSETTS: Atlantic States Whse & Cold Storage, Springfield.

MICHIGAN: United States Cold Storage Corp., Detroit.

MINNESOTA: Merchants Cold Storage Co., Minneapolis.

MISSOURI: Tyler Warehouse & Cold Storage Co., St. Louis.

Panel Sessions at NARW Convention



Top to Bottom: Warehouse Losses, Damage, Pilferage, Claims. New Business for Refrigerated Warehouses. You Have to Sell it to Fill it. The Customers Speak, representatives of customer industries express their opinions. Repair and Maintenance Problems.

NEW JERSEY: Merchants Refrigerating Co., Newark, N. J.

NEW YORK: Brockport Cold Storage Co., Inc., Brockport; Germantown Cold Storage Co., Inc., Germantown; The Upton Cold Storage Co. Inc., Rochester.

OKLAHOMA: Tulsa Cold Storage Co., Tulsa.

PENNSYLVANIA: Lancaster Ice Manufacturing Co., Lancaster.

SOUTH DAKOTA: Polar Cold Storage Co., Sioux Falls.

TENNESSEE: Chattanooga Warehouse & Cold Storage Co., Chattanooga; Commercial Storage Co., Memphis; Polar Cold Storage Inc., Nashville.

TEXAS: Texas Creamery Cold Storage Co., Houston.

WEST VIRGINIA: Diamond Ice and Coal Co., Charleston.

WISCONSIN: Badger Cold Storage Co., Milwaukee.

Panel Discussions — Operational Problems

The Tuesday morning session was used for three panel discussions on operations problems.

A Panel discussion of warehouse losses, damage, pilferage and claims was conducted by Howard K. Upham, Memphis, Tenn., assisted by Raymond Cash, Rochester; John Dozier, Houston; Charles C. Foley, Chicago; Kenneth Friend, San Francisco; John Jacobson, Worcester and W. J. Lamping, Detroit. This discussion was conducted on a question and answer basis.

On the question of orders being jumbled in partial carload shipments, it was suggested that a picture be taken and sent to the shipper and other interested parties. For uniform loading of trucks from the warehouse, a man should be put on the truck to see that it is loading properly and has the right amount of items. Partially loaded trucks especially should be supervised. For railroad shipments, the cars are inspected at the warehouse after which the railroad is held responsible. In case of local delivery if customer signs a receipt this relieves the warehouse of responsibility. If a package is short an item this should be referred back to the shipper or packer although the warehouse may be held responsible for not checking beforehand.

In regard to sealing shipments, it is general practice to use seals on railroad cars but not on trucks. For hidden damage claims this can only be handled on an individual basis with the customer, possibly referring it to the shipper or packer. Pilferage, it was stated, is a very annoying problem and difficult to correct. If occurring within the warehouse it is the responsibility of the supervisors to catch the culprit.

Repair and Maintenance

A panel discussion on repair and maintenance problems was conducted by William Flieg, Evansville, Ind., assisted by Louis Arata, San Francisco; Walter Bernd, Washington, D.C.; Paul Henningsen, Portland, Ore.; R. C. Herschman, South St. Joseph; J. C. Irwin, Kansas City; Willis Warren, Milwaukee.

This panel was opened with considerable discussion of how to repair a floor damaged by frost heaving which is now a subject of study by the Refrigeration Research Foundation. In regard to figures on maintenance costs as related to the total revenue, it was stated that each warehouse has a different maintenance problem due to conditions under which it operates and that it is impossible to arrive at a definite amount. One suggestion was offered that it should be about 2.8 percent of the total valuation. The removal of ice from the floor in front and around freezer doors, it was stated can be satisfactorily met with a special heated cable around the doors, the cost of which runs about $50.00 to $65.00 a door.

The Customers Speak

Continuing the plan started some years ago, a panel discussion was held by a group of customers of refrigerated warehouses, offering them an opportunity of airing complaints in regard to service and other features provided by the warehouses. This discussion was directed by Watson, Rogers, Washington, president of the National Food Brokers Association, assisted by Wm. Walsh, past president, National Wholesale Frozen Food Distributors; Dr. Cliff D. Carpenter, Chicago, president, Institute of American Poultry Industries; Dr. Wesley Hardenbergh, Chicago, president, American Meat Institute; L. S. Martin, Washington, secretary-manager, National Association of Frozen Food Packers; Robert Vincent, New York, Snow Crop Marketers, Division of Clinton Foods, Inc.; Joseph Melvin, Plymouth, Florida, Minute Maid Corp. This was conducted on basis of extended remarks by a number of the panel members followed by a short period of questions and answers from the floor.

Frozen Foods

In his opening remarks Mr. Rogers said the frozen food industry has a very satisfactory working arrangement with refrigerated warehouses. The new industrial developments and the comparative newness of the frozen foods industry however has led to some inefficiencies and misunderstandings which he thought could only be solved by experience and sincere desire of all parties to effect a more smoothly working arrangement.

Mr. Walsh said that by and large refrigerated warehouses are doing a commendable job for frozen foods. The building of new space and converting to freezers has been a tremendous job and this rush resulted in some things that have brought criticisms from customers. Returns from a questionnaire sent out a few weeks ago by the National Wholesale Frozen Food Distributors Association, he said, showed the following criticisms of warehouse service:

Too long delays in getting delivery of merchandise at the loading dock; arbitrary withdrowal hours; withdrawal charge shouldn't be assessed against big accounts and big lots; poor office processing of orders; overcrowded condition in warehouse; inadequate approach outside; merchandise scattered through warehouse; too much of a tariff penalty for low density products and for dozen size cartons; excessive 1st month charge; charge for one or two days the same as for a month.

Mr. Martin said that the majority of frozen food packers are satisfied with the service provided by the warehouses and recognize their interdependence on each other. But there are some criticisms as revealed by returns from a questionnaire among frozen food packers. This showed the following comments on warehouse service.

Packers are not confident that their merchandise is stored at 0 F or lower. Warehouses allowing frozen foods to stand for unreasonable length of time on loading platforms. More prompt advance notice of rate changes. More prompt notification of arrival of merchandise. More adequate temperature reports. Selection of proper refrigerator cars and trailers in loading frozen foods. The wide variations in the forms used by warehousing.

These problems were brought there he said because they affect both industries and by focusing attention on them it is hoped that all can contribute to improving the relations between the two groups.

Poultry and Egg Industry

Dr. Cliff Carpenter discussed the poultry and egg industry in its relation to refrigeration. All the major food industries have gone through great changes, he said, and in this refrigeration has had a large and growing part. The poultry industry needs more decentralization of warehouse facilities into points of production. There is some criticism of delays in loading and unloading shipments. Rough handling and improper stacking of frozen eggs is reported. There is some objection to withdrawal charges made by some warehouses. For these main problems Dr. Carpenter asked that the warehousing industry help the poultry industry in working toward solutions.

Meat Packing Industry

Dr. Hardenbaugh said that the meat packing industry is one of refrigerated warehousing's oldest customers and through the years the two industries have come to know each others' needs. Over the years the public warehouses have greatly improved their services through better temperature control, mechanization, pallet control and other features and in some respects they do a better job of handling meat products than does the meat industry itself.

Taft Hartley and Labor Pains

Charles Henry of Atlanta presented an interesting factual report on current aspects of the Taft-Hartley law. Mr. Henry is interested in the warehousing industry and is a labor consultant.

It is very difficult to forecast changes in labor laws now because of the situation in Washington, and the attitude of labor, he said. But there are some aspects of the situation that are clearly visible. The National Labor Relations Board through its recent decisions show a more favorable attitude toward management whereas the old board had an exactly opposite viewpoint, and it has reversed former decisions in some important respects. From Congress we can expect that the recommendations of the president will be pretty well carried out. The House Committee at present favors three main revisions: providing for a free strike vote; transfer of jurisdiction over unfair labor practices from the National Labor Relations Board to the courts; and giving the states jurisdiction over strikes affecting public health and safety, and giving them police power to enforce state laws covering such conditions.

Industry has expressed wholehearted approval of these amendments but present conditions indicate that there may be a deadlock between the House and the Senate which has not expressed approval of any of these amendments.

During the 20 years before the present administration, Mr. Henry, concluded, the country has been engaged in a struggle between two schools of thought, whether government should dominate the people, or whether the people should have the right to govern themselves. Now that the shackling restrictions are gradually being torn away, it is the duty now more than ever before to take an active part in government and make of it what they want it to be.

Problem Buster Clinic

A problem clinic was held Tuesday afternoon, directed by J. R. Shoemaker, Elmira, N.Y. and C. E. Eells, New York to discuss special practical problems connected with warehouse operation. The session was devoted chiefly to details of operating procedure.

Clinics on Sales

The Wednesday morning session was devoted to sales and merchandising through two discussion clinics and one on materials handling.

A panel discussion on "New Business for Refrigerated Warehouses where it is, How to Get it" was directed by F. D. Newell, Jr., Minneapolis, assisted by S. A. Kadane, Dallas; Alex MacToggart, Scranton; Leo J. Fisher, Jersey City; W. E. Ready, Indianapolis; Gilbert Stecker, Louisville; E. I. Wintermann, St. Louis.

Introducing the subject, Mr. Newell said the discussion would be pointed chiefly toward new items not previously stored, but would also include old items, which may require more storage than formerly. The discussion then was continued with informal remarks by the panel members.

A substitution for the space formerly occupied by shell eggs, it was suggested could be evaporated milk, storage of which is advantageous because under refrigeration the solids do not separate, and butter fat is preserved. Storage of canned meats is required by the armed forces to maintain quality. Flower bulbs are being stored in some cities and it is considered a good item although not in large volume. In Iowa the storage of seed corn has been a profitable small item and this also has been carried for as long as five years.

The storage of automobile batteries continues on a small scale, manufacturers and distributors finding it a convenient method of holding them in good condition without the necessity of recharging. One warehouseman reported being offered 10,000 batteries for storage.

Frozen fruit pies and frozen chow mein, while in small volume, are new storage items which give promise of developing into worthwhile business. In apple sections sweet cider is stored. A Louisville warehouse reported a growing volume of chicken pot pies. Frozen mushrooms are picked and frozen and then stored. Frozen fruits for use as preserves and frozen apples held in storage for making apple butter were reported. The storage of candy is developing into an appreciable volume. The interest in frozen bakery goods, also frozen concentrated milk, although not in appreciable volume as yet is growing.

You Have to Sell

A panel discussion on selling warehouse service was directed by George S. Jones, Washington, D. C. managing director Air Conditioning and Refrigeration Institute, assisted by Louis Baker, Denver; John Bear, Wichita; J. L. Gagini, Omaha; W. B. Haggerty, Tampa; J. P. Johnson, New York; Raymond Tuller, Springfield, Mass.

Mr. Jones opened the discussion with the statement that he assumed that warehousemen had space they wanted to sell, and the question then would arise as to how, whether by newspaper or trade paper, advertising, direct mail, personal contact, or by telephone. Newspaper and trade paper advertising while effective offers only a limited space to tell the story. Direct mail provides closer contact and an opportunity to tell the story. Personal contact is very effective but is a slow process and can only be used effectually with the larger customers. Telephone conversation also is productive of results. The most effective program is a combination of all these media.

It was pointed out that in the drive to attract new business it is very important to keep old products sold and old customers satisfied, and to remember that actual customers are more valuable than potential new customers. Regarding efforts by the warehouse to locate markets for storers, this is not a responsibility

that should be assumed, but if there is an opportunity to provide this service it should not be overlooked.

An important part in selling the services of the warehouse is to impress upon all employees the necessity of keeping alert to this opportunity. Most of them can do a good selling job if they are made to understand that it is desirable. Teaching them how to deal with customers is especially important.

Materials Handling

A panel discussion on the latest in materials handling was directed by C. A. Bowen, Nashville, Tenn. assisted by L. M. Ashenbrenner, Toledo; Wm. Giacomazzi, Jr., San Jose; D. H. Murphy, Denver; K. F. Stepleton, Chicago; Louis A. Wilson, Brooklyn; L. J. Urban, Los Angeles;

This was opened with a general discussion of the use of mechanical handling in multi-story warehouses with limited elevator capacity and low ceilings. The question was asked as to the advisability of palletizing in such a warehouse from the standpoint of labor saving and possible loss of space. It was pointed out that early palletizing was planned for modern storages with large elevator space and high ceilings, but now serviceable equipment is available for the older houses.

The first step in such a program is the improvement of elevators and second to consider the size of the room. The lighter pallet is advisable in multi-storage houses. A lighter pallet and use of uniform pallets are advisable for multi-storage houses. Small trucks are now available and will operate in 5½ to 6 foot aisles. Palletizing it is pointed out means greatly reduced labor costs but difficulty is often found in limited elevator capacity, small rooms and low ceilings. For the old type warehouse, every job has to be tailored to fit individual needs and no set program can be devised for all.

Jet Air Freezing

An interesting presentation of jet air freezing was presented by Edward Simons, San Francisco. Mr. Simons said he wanted to present the facts known in regard to his subject in order to stimulate further thinking.

A system for air blast freezing of poultry and railroad commodities was designed, developed and placed in successful operation at the Alford Refrigerated Warehouse, Dallas, Texas. Here the principals of air distribution developed by the air conditioning industry and the principal of jet air pump used in mines and other industries were extended into the field of low temperature freezing. The knowledge gained from this study and other studies on the characteristics of air jet makes available a very important tool in the development of air flows in refrigerated spaces where control of quantity, velocity, distribution and lineal throw is essential.

Mr. Simons illustrated his talk with slides showing three expansion jets used for long throw in a refrigerated humidity control room together with a specially designed high pallet piling set in operation.

Warehousing Forum

Another panel discussion was conducted on office procedure, warehouse forms, truck dock congestion, devoted chiefly to withdrawal and other forms used by frozen food customers, by Harlan J. Nissen, Los Angeles, assisted by Richard Doncaster, Holley, Calif.; Robert Lenzen, Baltimore; Alex Olsson, Portland, Ore.; Carleton Peacock, Philadelphia; Frank Snavely, Lancaster.

There has been much criticism from frozen food packers in the fact that there is a great lack of uniformity in notification used by the warehouse. The subject has been discussed previously and some progress has been made on it to the extent that warehouses gradually appear to be using forms with the information desired by the frozen food packers. One warehouseman on the west coast said that his warehouse forms had been developed primarily from the standpoint of the customer and to cut down on clerical work. They have reduced these forms to the essentials but providing information needed by the customer. These forms are filed numerically and alphabetically, so they can be located easily. Efficient handling in this respect, it was pointed out, is up to each warehouse and any panel discussion can only help in suggesting the information that should be included in the form. Most of the larger warehouses, it was stated, comply with requests in this respect, but some do not. What they want chiefly is forms of a uniform size and containing all pertinent information. Of all the warehouses in the country it was suggested that approximately 15 percent are remiss on this subject.

Cost Finding

A report on cost finding for refrigerated warehouses, a continuation of the study conducted over a period of some years by a committee headed by William C. Baker, Chicago was presented by Mr. Baker.

A detailed report on the subject developed by the committee was distributed to members of NARW. This report gave figures on all phases of refrigerated warehousing operations and will serve as a valuable guide on the subject. The report included a discussion of handling operations, storage revenue, warehouse labor and other details.

Resolutions

Following presentation and adoption of resolutions which were duplicated at the closing session of the American Warehousemen's Association, the convention adjourned.

Liquid, Frozen and Dried Egg Production

LIQUID egg production during March totaled 92,959,000 lbs., compared with 66,853,000 lbs. in March last year and the 1948-52 average of 87,771,000 lbs. according to a report by the U. S. Dept. of Agriculture. The quantities used for drying, freezing and immediate consumption were all larger than a year ago. Dried egg production totaled 3,140,000 lbs. compared with 2,120,000 lbs. in March last year and the average production of 6,176,000 lbs. Frozen egg production during March was the third largest of record for the month; 75,709,000 lbs. compared with 56,331,000 lbs. in March last year and the 1948-52 average of 65,474,000 lbs.

Montreal Refrigeration Shows Increased Profit

MONTREAL Refrigerating and Storage Limited, in report for the year ended December 31, 1953, shows profit of $142,430 or $3.84 per share against $100,310 or $2.21 per share in the previous year. Income taxes are shown at $272,220 against $114,620 and depreciation was $106,920 against $115,050.

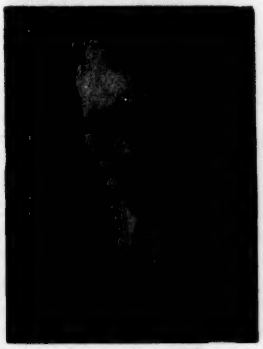
Current assets were $96,020 and current liabilities were $78,180, indicating net working capital of $17,840. At the end of 1952 there was an excess of liabilities over assets of $107,690.

New Cold Storage & Ice Co.

THE Rome Cold Storage & Ice Company, Inc., 712-718 First National Bank Building, Utica, N. Y., has been granted charter of incorporation, listing capital stock of 200 shares no par value.

Refrigeration Research Foundation – Annual Meeting Reviews Technical Developments

SIGNIFICANT technical developments in the refrigerated warehousing and related industrial fields were reviewed and discussed at the two-day meeting of the Scientific Advisory Council of the Refrigerated Research Foundation held at the Edgewater Beach Hotel, Chicago, April 21 and 22. This discussion included bakery products, dairy products, fruits and vegetables, meats, poultry, fisheries, radiation of foods, hygrometry, sanitation control, frost heaving, armed forces research, general engineering, and refrigeration abstracts.



Wm. A. Sizer, Chicago, Ill.
President TRRF

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Presiding at the meeting and opening the discussion, H. C. Diehl, director of the Foundation, introduced a new research project on 'Enthalpies of Some Foods in the Cooling and Freezing Range." The information submitted on this project stated that there is need for checking present published data covering the thermal properties of foods through the cooling and freezing ranges. This study is expected to develop an improved method of determining the thermal properties of foods through the cooling and freezing range.

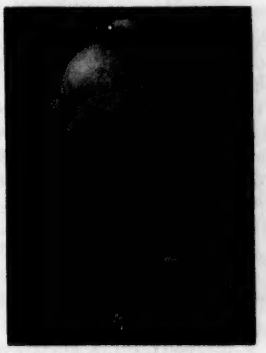
Dr. W. H. Cook, National Research Council of Canada, discussed results of the work on frozen concentrated milk. This work is being continued in Canada. Dr. S. T. Coulter, University of Minnesota, commenting on the value of this research said that concentrated milk would reduce the freight cost when transported a considerable distance. He said they have produced a satisfactory product which can be held in refrigerated storage. He also said that progress had been made toward producing dried milk but that some problems still remain in reconstituting it.

Dr. J. G. Woodroof, Georgia Experiment Station, on the subject of nuts, said there is much interest in the storage of these products because refrigeration and good packaging is essential to their proper preservation. There is a trend toward shelling which makes them vulnerable to insect infestation, drying out, picking up odors and other spoilage. In regard to temperature the lower the better. At 25 F they tend to dehydrate and become too dry. The lack of interest by warehouses in storing nuts, he warned, may lead candy manufacturers to build their own storage facilities.

Dr. W. T. Pentzer, U. S. Dept. of Agriculture, said the outstanding development in the fruit and vegetable field is the revolution in packaging. Fibreboard is being used more and more instead of wooden crates, and the newer film pack is coming into wider use. Small consumer sized packs are popular with the consumer. All along the line these products require refrigeration. Vacuum precooling of lettuce has had a tremendous growth and this has led to consideration of precooling in carload lots which would greatly reduce the cost.

Dr. Pentzer also touched on the growing interest in mechanical refrigerated cars. Introduced on a practical basis only about three years ago there are now about 625 in service, intended primarily for frozen foods but are also being used for other refrigerated products.

Dr. Roy Newton, Swift & Co. said there is a definite trend toward more precooked meat products. Carl Koonze, Swift & Co. said there had been no spectacular developments in the meat trade aside from the trend toward packaging and this had resulted from an endeavor to make them more convenient for the customer. D. M. Doty of The American Meat Institute suggested that irradiation of meats may be used to extend the shelf life of meat products. Dr. Cook said that packaged meats need better treatment in the retail stores and that close watch should be kept on changes in the color.



H. C. Diehl, Colorado Springs, Colo.
Director TRRF

Otto Young, Fisheries Research Board of Canada said one of the problems of fresh fish is dripping and this can be met by freezing as soon as possible. Storage requirements of fish as to time and temperature, he said is well understood but the trend is toward lower temperatures.

Dr. E. A. Fieger, Louisiana State University, who has made extensive studies of Golf shrimp said that fishermen are finding shrimp in deeper waters, entailing longer trips which makes adequate refrigeration of prime importance. Shrimp, he said, retain their quality only six to eight days, and then begin to develop off flavors. If they are iced within one day they can be retained for six months and within six days they will keep for three months.

Dr. Wm. Bradley, American Institute of Baking, Chicago, told about research work on bread which

applies also to other bakery products. The only method devised for arresting staleness is freezing. This has been very successful and bread can be held this way for several months. An advantage from the baker's standpoint is that baked goods can be produced and stock piled in storage thus reducing peak production and eliminating overtime and night work.

Dr. George Garnatz of The Kroger Food Foundation said the bakery industry is showing increased interest in freezing bakery products. An imminent five-day week would increase advantages of stock piling over weekends, and the same would be true of holidays. Kroger started preliminary research some time ago on this subject with the idea of encouraging the housewife to buy more bread at one time and storing it in her home freezer. The next logical step, he said, would be to sell frozen bread.

Dr. Cliff Carpenter, Institute of American Poultry Industries said the sales of poultry are increasing at a rapid rate, and this brings problems in the processing angle. The chief efforts, he said should be to retain and improve quality and at the same time bring a better return to the producers. Refrigeration is becoming increasingly important because it is a necessity for a good product. There is need for more knowledge regarding refrigeration for the processing of ice chilled, ice packed and frozen poultry.

Poultry Products

Dr. George Stewart, University of California, said that there is much emphasis now on quality of all poultry products. Poultry meats now are produced under better sanitary conditions which make for a better product. Sub-scalded poultry needs more adequate protection and must be frozen soon after being dressed. Regarding eggs there is a decided move against washing and a turn toward dry cleaning, but this is expensive and still not entirely efficient.

Dr. A. A. Winter, Ohio State University, reported that frozen eggs are more uniform, cheaper and the quality is better than shell eggs, but there are more uses for shell eggs. One objection on the part of smaller bakers is that the standard package for frozen eggs is 30 pounds, while they need a smaller package. Research is needed, he said, on defrosting and on the mixing of frozen and whole eggs.

A written report was presented by Hans Lineweaver, project leader Poultry Section, Western Utilization Research Branch, Albany, Calif. on the work done by Dr. A. A. Klose on the processing, handling, freezing and storage of turkeys. The report covered scalding studies, and fluctuating temperature studies. Birds packaged and frozen immediately after evisceration, the report stated, compared quite favorably in appearance with those that were slush-ice chilled and then packaged and frozen under the same conditions.

Dr. E. F. Jansen, Western Utilities Research Branch, Albany, Calif., discussing their work on frozen foods, said its purpose was to produce the best frozen foods without loss of quality. They had picked up samples from retail stores and tested them at the laboratory for taste and consumer acceptance. The results will be published soon. However, preliminary results indicate that there are some changes in fruit stored at O F for six months to a year.

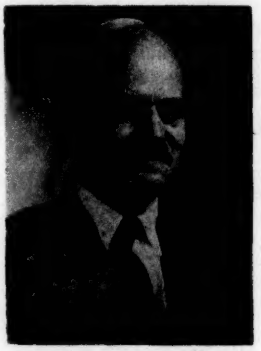
Dr. D. K. Tressler, Quartermaster Food & Container Institute and Wm. J. Finnegan, Los Angeles, also discussed the subject briefly, both emphasizing the importance of doing everything possible to maintain the quality of frozen foods and to do this constant temperatures at a very low point must be maintained.

Dr. J. G. Woodroof, Georgia Experiment Station, talking on candy research, said that more and more big companies are becoming interested in the storage of candy for stock piling in different sections of the country and for this extended use of refrigeration is essential. Full information on this is now available and is being used more and more.

Miscellaneous discussion brought out the fact that there is renewed interest in the storage of green coffee, on which research results were published some years ago; also the storage of flower bulbs to retain dormancy was suggested as a possible new research project. Other subjects suggested were use of refrigeration for plastics and control of insects with refrigeration.

Reporting extemporaneously and briefly on the USDA cold storage advisory committee, Paul Christensen, North East Cold Storage Company, Portland, Me., said the U. S. Department of Agriculture now has over 100 major research projects of prime interest to the refrigerated warehousing industry. He made a more detailed report on this work at the meeting of the National Association of Refrigerated Warehouses, reported elsewhere.

A report on frost heaving of cold storage floors was given by Prof. R. C. Jordan, University of Minnesota and Jas. Irwin, U. S. Cold Storage Corp. A research project by TRRF on this is now under way at the University of Minnesota, jointly sponsored by the ASRE. It started with a compilation of information on the subject, of which there was considerable. Soil heaving due to freezing affects other work, such as road building, so the problem is not unique to warehousing. The present study includes a study of soils and moisture migration and some basic conclusions will be published soon.



Dr. Samuel C. Prescott,
Chairman of Board TRRF

A report on armed forces research was presented by D. K. Tressler, Quartermaster Food and Container Institute, There is much interest in relative long storage periods of from three to five years. Normally items on grocery shelves can be carried up to two years, but lower temperature will greatly lengthen the time they may be held in good condition. At the Georgia Experiment Station a study was made of army field rations of various types. It was found that a temperature of about 30 F is advantageous for about five years, which will make stack piling feasible.

On the subject of Hygrometry, Dr. C. W. Thornthwaite, Johns Hopkins University reported that a study had been undertaken to measure changes in the atmosphere, temperatures and moisture. Humidity, is said, is difficult to measure, but it is an important subject to warehouses. Their study had shown a tendency toward universal behavior in all refrigerated warehouses, and control of humidity can be attained by keeping a close watch on temperatures. This study involves a study of all instruments for measuring humidity, some of which are very complicated, as basis for devising one that will be practical and usable for refrigerated warehouses.

Prof. Burgess Jennings, Northwestern University said they had tried several devices for measuring humidity but were unable to get the results desired. A point to be remembered he said is that relative humidity may vary considerably in different parts of a cold storage room so that if a reading is taken in only one part of a room the results may be deceiving.

A discussion of packing developments brought out that products of the same critical temperature are best kept together. Although some packaging is expensive it may keep the contents better enough to pay this added cost. Plastic wrappings are coming into the market that are very effective.

Jet Freezing

A brief discussion of jet freezing was given by Edward Simons, San Francisco. He said that this is not a new process but is an improvement in air flow. The problem involves producing a uniform air flow over a large space and to accomplish this a jet pump is used to produce pressure in pockets to force the air to flow out. Mr. Simon presented a more detailed discussion of this at the NARW meeting reported elsewhere.

The subject of condensation control was discussed by Dr. J. G. Woodroof. Some ill effects of condensation had been found in products when removed from storage, he said, and they were setting up a technique for measuring the climate inside packages. The density of the product determines the rate of change in temperature and resulting condensation.

Prof. Carl Kayan, Columbia University, reported that results of their studies closely parallelled those reported by Dr. Woodroof. To control condensation inside the package, he said, a slowing down of vapor from inside is needed, and to obtain this a vapor proof case is used. The remedy is to have a tight case that will not permit the vapor to leak through.

On the irradiation of foods, it was reported that very extensive research is under way on sterilization of pharmaceutical and food products by radiation, without heat. Reporting on this Wm. J. Hoover said that from the standpoint of refrigerated warehousing, no immediate adverse effects are indicated, but it is a subject that should be better understood. At present there has been no successful sterilization of food products without an adverse effect, but this objection may be met by an improved process. This subject was more fully discussed at the meeting of the NARW at Boca Raton by Dr. B. E. Proctor, Massachusetts Institute of Technology.

The use of fluorescent lighting in cold storage rooms to reduce the heat of ordinary lighting was mentioned by Dr. Diehl. Equipment for this has been designed but is not yet available and this, he said, offered another subject for study.

Refrigeration abstracts, a compilation of basic technical information through collaboration with the ASRE, it was announced, is now available to members of the Foundation.

At a group dinner held Wednesday evening, Dr. Wm. C. Schoenfeld Corvallis, Oregon member of the TRRF Board of Governors, who visited widely among refrigerated research centers in Europe last summer gave a talk on his impressions gained on that trip. His talk dwelt upon the rehabilitation and reconstruction work in Germany now under way and accomplished. Refrigerated warehouses in Hamburg and Bremen, Germany, he said, had been completely rebuilt. Especially interesting, he said, were the new port facilities in Bremen which are now more modern and efficient than the old, with completely mechanized equipment. The warehouses, however, are hampered by low occupancy due to sub-normal transportation facilities.

Annual Membership Meeting

The annual membership meeting of The Refrigeration Research Foundation was held at Boca Raton, Florida, Sunday, April 25, the day before the opening of the annual meeting of the American Warehousemen's Association and the National Association of Refrigerated Warehouses.

Presiding was Dr. Samuel C. Prescott, chairman of The Board of the Foundation. In a prepared address, Dr. Prescott reviewed the progress and accomplishments of the Foundation since it was organized ten years ago. Wherever research has been used adequately, he said, it has aided prosperity, and this was eminently true of The Refrigeration Research Foundation. Today, research is more important than ever before because of increased industrial activity in which refrigeration has a large part. It is a continuous process, constantly expanding in every direction.

Those who attended the meetings of the Scientific Advisory Council in Chicago, he said, could not fail to be impressed by the excellent reports and discussions. In many instances it was made clear that by new analytical procedures, new methods of measurement, and new advances into basic relationship of pure science character, the solution of some of the problems undertaken will be greatly promoted.

As the Foundation enters its second decade, he said, he was confident that it will become an even more potent factor and will fully uphold the broad ideals on which it was founded.

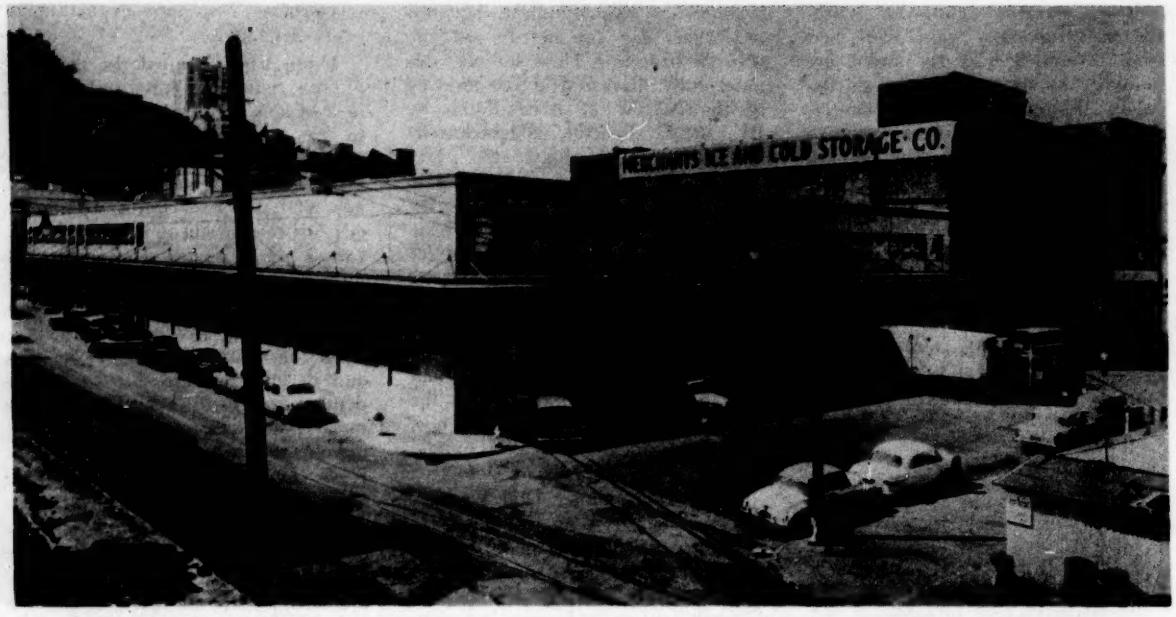
Wm. A. Sizer, president, said he would make no extended comments because the work of the Foundation had been adequately covered in the annual report of the Director and he assured the members that the work will continue.

The report of the Treasurer was presented by W. A. Kopke. Mr. Kopke reported that here is more interest in the Foundation than ever before, and this is reflected in its financial support by the members. The finances are being adequately administered and the work of the Foundation will continue with completely adequate financial report.

The report of the Director was made by Dr. Diehl. Since a printed report was already in the hands of the members Mr. Diehl commented extemporaneously on some of the more important current aspects. The meeting of the Scientific Advisory Council in Chicago, he said, was a very important session at which reports were heard from some of the more outstanding food technologists and a resume of its proceedings would give a good understanding of the scope of work of the Foundation. He also announced that a national training conference for warehouse personnel is being planned for this year, probably in St. Louis.

Board of Governors

Members of the Board of Governors to fill vacancies of terms expiring in 1957 were nominated and elected as follows: Charles E. Adams, Jersey City, N. J.; Fred F. Alford, Dallas, Texas; E. M. Dodds, Kansas City, Mo.; Herbert Farnsworth, Boston, Mass.; Wm. F. Giacomazzi, San Jose, Calif.; Richard C. Muckermann, St. Louis, Mo.; James W. Straub, New York, N. Y.



The Merchants Ice & Cold Storage Company Plant, San Francisco, Calif. with new addition.

Space Eating Features Eliminated in Modern Addition to San Francisco Warehouse

JUST a little over a year ago, Merchants Ice and Cold Storage Company of San Francisco started operating its new storage addition. This new one-level plant incorporated the latest in design which eliminated slow moving freight elevators, long halls and numerous corners. By avoiding these space-eating features, the entire area of the plant can be devoted to storage, plus whatever room is required for the necessary refrigeration equipment.

This new addition has five rooms. Four of the rooms, each of which is approximately 70 x 138 x 18 feet, have their own temperature control so that meats and other foods can be kept at any temperature desired from minus 20 to dry storage at 40 F above or even higher. The fifth room is a sharp freeze room approximately 38 x 26 feet and is held at an even minus 50 F.

Refrigerating Equipment

Four Vilter vertical ammonia compressors and two EC80 evaporative condensers provide the high side for the floor mounted prime surface air units used in refrigerating the four main storage rooms. The sharp freezer operating at −50 F has four 5 hp axial flow fans and a coil bank of prime surface 1¼ inch steel pipe coil with low pressure float control. All coils are of the flooded type while the rooms have been set up with back pressure regulator valves for variable temperature conditioning, as may be required. The four compressors, two 9½ x 9½s and two 13½ x 10½ boosters, operate under a two stage system. The two 13½ x 10½ units provide the first stage of the system and operate under 60 hp. The two 9½ x 9½ units provide the second stage and are driven by 75 hp motors.

Compressor Setup

Usually, one booster and a 9½ compressor operate this plant with the compressors being alternated every two or three weeks to secure even service from both sets. This set-up proved entirely satisfactory

Two Vilter EC80 evaporative condensers used as the high side for the air units in the main storage rooms.

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Completely automatic, this Gifford-Wood Type A Cuber shoots out perfect ice cubes at the rate of 26,000 per hour and minimizes ice waste. It accommodates a 300- to 400-pound cake which is held firm on the loading plate, aligned with the precision cutting saws. And, as soon as this first cake is ¾ cut, a second cake slides easily into place pushing the remaining quarter into the saws. This means no waste—every piece of ice is saleable. There's a further benefit, too—all parts coming in contact with the ice are not only sturdy, but completely corrosion-proof—your guarantee of minimum maintenance cost. For full information, write for Bulletin 488.

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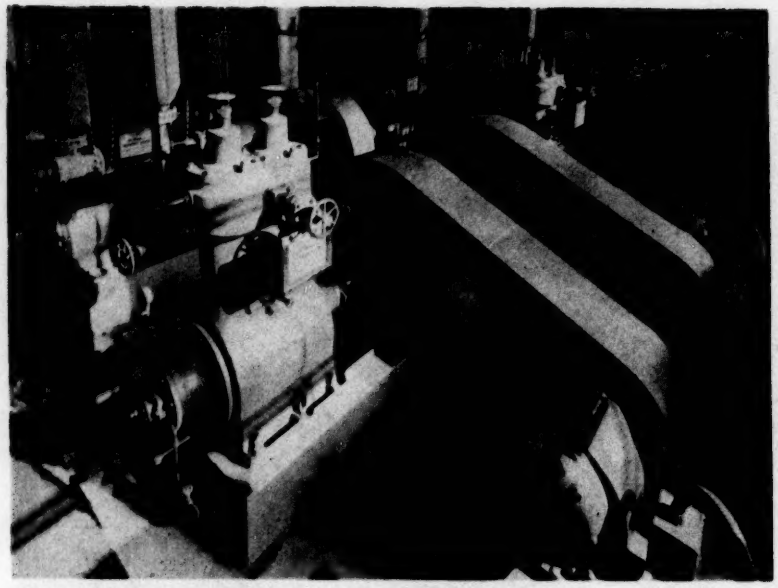

The right front foreground shows the two Vilter 9½ x 9½ vertical compressors. The two 13½ x 10½ verticals are in the rear.

even during last year's hot summer. Once a day the company engineers from the main plant across the street inspect the engine room.

Air Circulation

Another interesting sidelight on this new building is a special air circulation system. Air is pulled off the street, circulated underneath the insulated floors and then discharged at the roof by means of a ventilating fan. This is done to prevent any frost accumulation in the earth-fill which might possibly heave the foundation.

Total capacity of this new four room unit is over 600,000 cubic feet or 60 carloads per room, while the sharp freezer can process 40 tons during each 24 hour period. Despite the large capacity of this new one-story building, the San Francisco ice and cold storage company plans on adding two more similar units to the existing building.

Left front foreground shows the two Vilter 13½ 10½ vertical compressors. The two 9½ x 9½ are shown in the rear.

When this expansion program is completed, the building will cover one square block and have storage facilities up to 1,800,000 cubic feet. At present, spur tracks along the sides of the plant have a loading capacity of 15 trucks and 10 railroad cars at any one time.

Vilter distributor, R. E. Manns, who installed all the Vilter equipment, advises that the company officials are well pleased with the operation of the refrigeration equipment.

New Warehouse Being Erected in New Orleans

A $750,000 COLD storage warehouse, described as the city's most modern, is under construction on Jefferson Hwy. opposite the new Ochsner Foundation hospital. Estimated completion date is November 1. First phase of the project provides for 690,000 cubic feet of refrigerated space for processing, freezing and storing. It is planned eventually to triple the size of the warehouse to make it one of the largest of its kind in the country. Jefferson Cold Storage, the corporation building the warehouse, is headed by Robert N. Monsted, president, with Joseph McCloskey as secretary.

The building is a one-story steel and concrete block construction 222 feet long with two loading platforms running its entire length. An 18-foot ceiling is provided in the main refrigerated area, to be kept at 10 degrees below zero. Microlite glass wool insulation from six to eight inches thick is to be provided in floors, ceiling and walls. The company said the latest type of refrigeration equipment is being acquired.

Some 8000 square feet of air-conditioned office space is incorporated in the building plans.

Curtis & Davis, New Orleans, are the architects. General contractor is United Builders, Shawnee, Okla. Insulation is to be handled by the Standard Insulating Co. of Fort Lauderdale, Fla. The refrigeration subcontractor is the Burge Ice Machine Co., Chicago.

Cold Storage Plant Expands

CONTRACT has been awarded for construction of an addition to the plant of Albany Ice & Cold Storage, Inc., Albany, Ore., Jesse Savage, president of the Albany firm, announced. Total cost of the building including equipment, will be more than $100,000.

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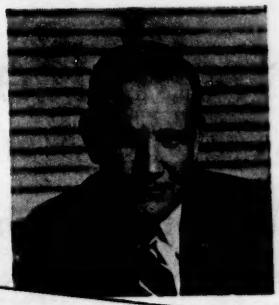

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Desuperheating Discharge Gas With Air Cooled Exchanger

A Discussion Prompted by Question Box No. 996, May, 1954 Industrial Refrigeration

H. G. VENEMANN

Purdue University

IN April a reader inquired into the feasability of increasing his inadequate water cooled condenser capacity by adding an air-cooled gas desuperheater between the discharge manifold and the water cooled condensers. It was pointed out that the reader was attempting to increase his condensing capacity from 105 to 150 tons. The answer given indicated that it would probably be a mistake for the reader to obtain his needed 45 tons condensing capacity in this manner. Published here is a summary of a study I have made on desuperheating discharge gas with air.

Air Desuperheating Advantages

The principal advantages to be obtained by extracting the superheat from the discharge gas before it reaches the condenser by means of an air-cooled heat exchanger may be listed as follows: less water per ton of refrigeration is required; if the same quantity of water is used after the installation of the air-cooled desuperheater as before it was installed, (a) the refrigeration capacity of the plant may be increased without overloading the motor or (b) the discharge pressure may be reduced without reducing the plant capacity thus saving motor horsepower; and, the removal of high temperature superheated gas from the condenser reduces the chances of scale formation.

Discussion of Advantages

Less condensing water is required per ton refrigeration or per pound of refrigerant in circulation, because less heat must be removed in the condenser proper. A desuperheater removes in some cases as much as 22 percent of the heat in the discharge gas.

Table 1 has been prepared to show water requirements with and without the use of an air superheat extractor under a wide range of operating conditions. Three sets of evaporating temperatures are shown, each with four sets of condensing temperatures. This covers a range of suction pressures from 3.6 psig to 33.5 psig. and discharge pressures from 114 to 197 psig. Column 5 shows the temperatures of the discharge gas after adiabatic compression. The temperatures which prevail in practice may be either slightly higher or lower than these.

Column 6 shows the amount of superheat that may be removed by the air desuperheater; while column 7 lists the amount of latent heat to be removed in the condenser proper; and in col. 8 is shown the total heat to be removed in the condenser if no superheat extractor is used. The percent of the total heat that may be

TABLE Showing Water Requirements With and Without Use of an Air Superheat Extractor for an NH_3 System Over a Wide Range of Operation

Heat to be removed from ammonia gas to condense it at various operating pressures (adiabatic compression assumed)									Water required to remove heat with and without an air superheat extractor (gallons per minute per ton refrigeration)							
evaporating		condensing		discharge	heat in discharge gas				temperature rise through condenser							
temp. F.	pres. psig	temp. F.	pres. psig	temp. F.	Btu superheat	per lb. latent	ammonia superheat	% in total	5° rise with	5° rise without	10° rise with	10° rise without	15° rise with	15° rise without	20° rise with	20° rise without
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
−20	3.6	100	197.2	308	136.0	477.8	613.8	22.1	5.10	6.56	2.55	3.28	1.70	2.17	1.28	1.64
−20	3.6	90	165.9	282	124.0	488.5	612.5	20.1	5.09	6.38	2.54	3.19	1.70	2.13	1.27	1.60
−20	3.6	80	138.3	256	111.3	498.7	610.0	18.2	5.06	6.19	2.53	3.09	1.69	2.08	1.26	1.55
−20	3.6	70	114.1	228	97.8	508.6	606.5	16.1	5.04	6.01	2.52	3.00	1.68	2.00	1.26	1.50
0	15.7	100	197.2	256	104.0	477.8	581.8	17.9	5.02	6.12	2.51	3.06	1.68	2.04	1.26	1.53
0	15.7	90	165.9	230	92.0	488.5	580.5	15.8	5.01	5.95	2.51	2.98	1.67	1.98	1.26	1.49
0	15.7	80	138.3	206	81.3	498.7	580.0	14.0	4.99	5.80	2.50	2.90	1.67	1.93	1.25	1.45
0	15.7	70	114.1	181	70.9	508.6	579.5	12.2	4.98	5.67	2.49	2.84	1.66	1.89	1.25	1.42
20	33.5	100	197.2	212	77.0	477.8	554.8	13.8	4.97	5.77	2.49	2.88	1.66	1.92	1.24	1.44
20	33.5	90	165.9	188	67.0	488.5	555.5	12.0	4.94	5.61	2.47	2.81	1.65	1.87	1.24	1.40
20	33.5	80	138.3	166	57.3	498.7	556.0	10.3	4.93	5.50	2.47	2.75	1.64	1.83	1.23	1.37
20	33.5	70	114.1	141	46.9	508.6	555.0	8.4	4.92	5.37	2.46	2.69	1.62	1.79	1.23	1.34

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Operating engineers of all refrigerating plants are invited to affiliate with the National Association of Practical Refrigerating Engineers, an educational association.

Disadvantages of Air Exchanger

A desuperheater requires additional investment and maintenance cost. It also requires extra power to operate the fan motor. Since the heat is being transferred from a gas to a gas, the overall heat transfer coefficient is relatively low, as compared with the coefficient from a gas to a liquid; thus requiring larger heat transfer surface.

removed in the superheat extractor may be found in col. 9. This ranges from 22 to as little as 8.4 percent.

Columns 10 to 17 inclusive, show the water requirements with and without the air superheat extractor. These are shown at temperature rises of 5, 10, 15 and 20 degrees between the inlet and outlet water temperatures. It would be impossible to make up a table to illustrate the influence of the desuperheater on the plant capacity or on the power savings without having complete data relating to the performance characteristics of the condenser in use.

Reduction in Scale

The removal of high temperature superheated gas from the condenser reduces the formation of scale on the water side of the tubes. As shown in col. 5, Table 1, the gas enters the heat transfer vessel at temperatures ranging from 141 to 308 degrees F. In all cases where the superheated gas is discharged directly into a water cooled condenser the following conditions prevail. On the ammonia side, part of the tube surface is dry and part is wet. The temperature of the metal at the dry surface will be between that of the superheated gas shown in column 5 and that of condensation shown in column 3. It will be much nearer the condensing temperature than the discharge temperature because of the differences between the water and ammonia gas film coefficients. There will be little drop in temperature through the wall of the tube.

On the water side of the tube opposite this dry surface the temperature of a very thin film of water will rise higher than the average water temperature. The mineral content in this thin water film will precipitate at a faster rate due to its increased temperature. The heating of any water containing hydrogen carbonate will tend to decompose it. For example, calcium bicarbonate when heated will precipitate calcium carbonate. The solubility of calcium sulphate is given as 2.98 grams per liter at 0 degrees centigrade and as 1.619 grams per liter at 100 degrees centigrade. Between these two points its solubility is directly proportional to its temperature.

Advantages versus disadvantages

From the standpoint of the plant owner, the advantages to be derived from the use of an air desuperheater must offset its additional investment maintenance and operating costs. The greatest benefits are obtained under the four following conditions: (a) When discharge temperatures are high; (b) When quantity of condensing water is limited; (c) When mineral content of condensing water is easily precipitated at increased temperatures; and (d) When the condensers are too small for the capacity of the plant.

News Notes and Chapter Activities

Dallas

GEORGE F. STEWART

THE meeting March 15 was held at Lone Star Gas Co., Dallas. After refreshments, the program got under way with Leroy Frick, Carrier Corp., presenting a paper on Carrier absorption machines and controls. Time was limited for questions as a tour was made of the engine room. Mr. Gieb, chief engineer, Lone Star Gas Co., led the crowd. There was a good attendance, many seeing an absorption plant for the first time.

On April 5, the regular meeting was held at Alford's Refrigeration Warehouse. Johnny Walstrum from Bancook Maintenance Co. conducted the refrigeration class. Walstrum does a good job and we do appreciate his filling in, when our regular instructor cannot attend. The regular meeting April 19, was at Alford's. The speaker, S. D. Andrews, General Controls Co., presented several valves and their thermostatic controls to supplement his lecture.

Members of Dallas Chapter on plant tour at Lone Star Gas Co.: J. Ed. Lawrence, Virgil Young, Henry Heard and Tom Weatherford, Jr., Dallas past president, and National Sgt.-at-Arms.

While visiting Lone Star's absorption plant, our cameraman got our two busiest officers to take time out for a snapshot: Cecil E. Taylor, secretary, and Harold Koutnik, treasurer.

Milwaukee

ANDY ANDERSON

MILWAUKEE Chapter began its official re-organization on Monday, April 19 in the Theatre of the Milwaukee School of Engineering. C. Ward Stoner, a member-at-large, and one of Professor H. G. Venemann's earliest students at Purdue, introduced the professor as the guest speaker. The professor gave a brief talk encouraging engineers in the Milwaukee area to join NAPRE, and encouraged both manufacturers and local refrigeration plant management to take an active interest and to associate themselves with the local chapter. The National Secretary, after filling in details of information about NAPRE, was assisted in answering prospects questions by Professor Venemann, then presided during the formation of the temporary organization committee.

President pro tem elected by those present was Al Rolouff, chief engineer, Blatz Brewing Company; Pat Kelly, chief engineer of Wisconsin Cold Storage, agreed to act as vice-president pro tem; L. J. Anderson, Ben Hur Mfg. Co., was designated acting secretary-treasurer. Other Ben Hur personnel on the committee are C. Ward Stoner, vice president of the firm, Jack Schmidt and Bud Tondreau. Paul Swarthout, chief operating engineer and John Alberte, assistant, both of the Schlitz Brewing Company, Claude Horton of AP Controls, and Leroy Gitten, were also nominated to the committee. A meeting was scheduled for both May and June before the meeting adjourned.

St. Louis

STAN TATE

AMMONIA will burn under some conditions, but it is doubtful that it will ever explode. So-called ammonia explosions are usually found to have occurred in tanks or confined spaces where oil vapors or other explosive factors would account for the blast. These points were mentioned by Ken Holaday in a brief review of data on ammonia hazards at the April 19 meeting of St. Louis Chapter. He emphasized the toxicity of ammonia as a more real and ever-present hazard than its inflammability.

A series of wall charts indicated graphically the unfavorable effects which follow when concentrations are allowed to accumulate beyond the minimum detectable by odor. There was a discussion of the proper use and care of ammonia gas masks, and a review of ventilation standards for refrigeration machine rooms. The meeting was in charge of Ed Lotte, vice-president. Treasurer Ed Hughes made a brief report indicating the chapter's solvency.

Green Bay

JIM SCHOUTEN

GREEN BAY Chapter, NAPRE, received its charter officially on Wednesday, April 21, when Professor H. G. Venemann, National Educational Chairman, presented the document to the members on behalf of the national organization. The national board chairman Bert C. McKenna was present and initiated 32 charter members and installed the first group of officers for the new chapter. The national secretary, J. Richard Kelahan, was also present.

President Lester G. Winkler receiving Green Bay Charter from Professor H. G. Venemann at the first annual banquet and installation of officers.

Of the 33 charter members, whose names are inscribed on the document, only one, Harvey A. Wishart, had previously been a member. It was Harvey's realization of a dream come true. He had encouraged engineers in the Green Bay area for many years to form a chapter. Although the chapter really got started last August and has held regular monthly meetings since then, the installation of the charter awaited an opportunity for Professor Venemann to make a personal appearance. This was a desire of the Green Bay members indicated at the time they petitioned for the charter.

Officers installed were: President, Lester G. Winkler, chief engineer, Oshkosh Brewing Co.; Vice-President, Lambert Bodart, asst. chief engineer, Atlas Warehouse and Cold Storage; Secy-treas., J. B. Schouten, sales engineer, Bassett Refrigeration Co.; and Sgt.-at-arms, Albert W. Petcka, chief engineer, Midwest Cold Storage Co.

The first board of directors are: Harold P. Denissen, chief engineer, Reimer's Meat Products; Myron J. Miller, president & manager, Miller-Rasmussen Ice Corp.; and A. E. Reinert, chief engineer, Consolidated Badger Cooperative.

Newly installed officers of the Green Bay Chapter: l. to r., standing, Albert W. Petcka, A. E. Reinert, J. B. Schouten; sitting, Lester G. Winkler, Lambert Bodart and Myron J. Miller.

Other charter members are: Myron Arnoldi, Ernest Arnoldi, E. W. Bassett, Charles W. Bassett, Eugene H. Bruggink, Otto Bowling, Edwin D. Cleary, Charles E. Culbert, Robert W. French, Leo J. Kusch, Nick Mastricola, A. V. Montoure, Robert L. Moore, Milton A. Noel, Alfred Nordman, Tony Pinchart, Herman Reckelberg, Tom Reed, C. E. Rogers, Adolph Runge, Chris Speerschneider, Maynard Toellner, Amos Vierbicher, Donald Welsing, Gordon Earl Wishart.

Chicago Chapter members made up the initiating and installing team. In addition to Bert C. McKenna, Chicago President, other members of the team were John Neff, a national honorary member; the national secretary; William V. Richards, H. A. Philipps Company; Eugene Rytlewski, Westerlin and Campbell; Roy Espe, Burge Ice Machines; Jack Schute, Sherman W. Putnam Organization; and Harvey A. Wishart.

The ceremonies were preceded by a banquet and the ladies of the Green Bay members were in attendance. Mrs. Rytlewski and Mrs. Espe, made the trip to Green Bay for the affair. Chairman of the banquet committee was Myron Arnoldi, assisted by Leo Kusch and Donald Welsing.

Memphis

CHAS. CONLEY

ON OUR successive meetings of March 17, April 7 and 21, H. L. Todd, our instructor, lectured on the Guy King Course. He covered compressor calculations for given loads and operating conditions. Economic operation came in for considerable discussion, as did heat transfer topics on evaporating and condensing sides of the system. Blackboard work helped put across the calculations. Questions galore were asked. At the April 7 affair, Frank Garbuzinski, C. T. McArthur, E. W. Dixon, asst. engineers, Mid-South Refrigerated Warehouse Co., were elected to membership.

New Orleans

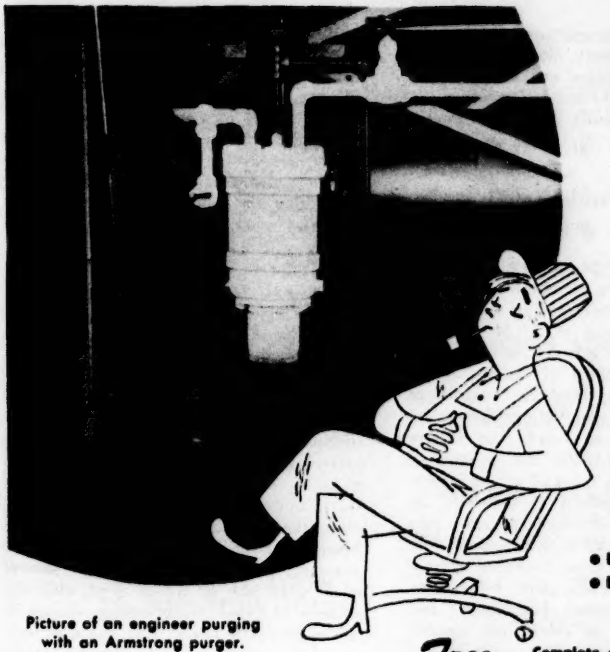
DAN BEHRE

ON the evening of March 24, 125 members of Louisiana Chapter No. 2 were guests of New Orleans Public Service Inc. for a plant visit at their A. P. Paterson Steam-Electric Generating Station, representative of one of the newest designs in plant construction. Termed the "semi-outdoor" type, it is so called because major elements of plant equipment such as boilers are weather-proofed and exposed instead of being housed in the conventional building. Economies in construction are thereby effected.

The plant began operation in 1947 with the installation of the first unit. By 1950 the completion of the third unit had brought its net capability up to 133,000 KW. The work on the installation of a fourth unit of 82,000 KW is now nearing completion. This provided an excellent opportunity of seeing the new generator, boilers, condensers, etc. under erection. Following the tour, the members gathered in the plant auditorium for refreshments and a general get-together which lasted late into the evening.

Engineer guide for New Orleans Public Service Co. shows tour group from Louisiana Chapter No. 2, one of the three 44,500 KW steam generators.

Another New Orleans NAPRE group inspects the steam instrument panel of New Orleans PSC's 133,000 KW Paterson plant on March field trip.



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Los Angeles

FRED HERR

THREE 20-minute talks on unrelated subjects, presented by a trio of chapter members, constituted the educational feature at the May 5 meeting of Los Angeles Chapter. The program was arranged by Larry H. Benedict and Elmer Johnson. Each speaker submitted a review of a technical paper which he regarded as among the best he had read during the past year. The speakers were: Kenneth Robertson, sales engineer, Pacific Scientific Co.; Michael Julius, chief operating engineer, California Consumers Corp.; and Jack H. Davis, operating engineer, Royden Ice Co.

The discussions were only indirectly related to refrigeration and formed a type of program which Benedict's educational committee presents once a year to offer a change from the usual semi-monthly refrigeration talks. Robertson discussed plastics and the tremendous strides this comparatively new industry has enjoyed in the past one and one half decades; Davis followed with a discussion of solar furnaces, their design, construction and application today; and, Mr. Julius on pressure at super levels.

Reporting on membership activities, W. R. Burnett announced that for the next several months the efforts of the membership committee will be devoted to bringing new members into the fold from the hotel field. He commented on an article on "Hotel Air Conditioning" by E. B. Utescher in the May, 1954, issue of *Industrial Refrigeration*, and suggested that it be used as reference data when talking to hotel refrigeration engineers who are not yet members of the NAPRE.

Secretary Donald Byl reported that 65 members took part in the field trip to Ventura, Calif., on April 10, where an inspection of the Shell Chemical Company's new 10 million dollar ammonia plant was made. Prior to being guided through the plant by Shell guides, the NAPRE members and guests enjoyed luncheon at Pierpont Inn in Ventura with the compliments of the Shell Co. Arrangements for the interesting and educational visit were made by Herbert H. Royden.

The April 23 meeting in the Terminal Club attracted an SRO crowd to hear a program of talks and slide projections on "Modern Railroad Car Refrigeration". This program was arranged by E. T. Quinn of Pacific Fruit Express, with John F. Daly, manager of the refrigeration department, Santa Fe Railroad, as the key speaker. Mr. Daly was unable to be present and his paper was read at the meeting by Ted R. Barben and S. G. Granese of the Santa Fe refrigeration staff. The paper presented a complete discussion of the development of mechanically refrigerated cars of which there are at present approximately 1000 in use by Pacific Fruit Express, Fruit Growers' Express, and the Santa Fe Railroad.

At the conclusion of the Car Refrigeration paper, representatives of the Preco, Inc., Los Angeles staff, showed a film on a car icer developed for Pacific Fruit Express. Preco engineers collaborating in presenting the film and commentary were P. Z. Anderson, Jerry Magarian, Herbert Bigelow, F. A. Larson and Henry Fuchs. Three membership applications were approved at this meeting from: D. Cameron MacDonald, Harry M. Robinson and Allan R. Slingsby.

Rio Grande Valley

ARMIN F. DONEIS

ON March 29, in preparation for the annual election of officers, President Ollie Allbright appointed a nominating committee, consisting of A. M. Casberg, G. C. Musch and Clyde Young. Professor Muller then welcomed 17 visitors of the evening, and told them the purpose of NAPRE and how the Valley Chapter operates. He outlined briefly the history and activity of NAPRE and invited all visitors to "make a habit of it" by returning often and regularly to meetings, including a warm invitation to take part in the party on April 27. Representatives of Gulf Oil Co., then presented several films on gear design and lubrication, bearings and bearing lubrication, and proper procedure in lubricating electric motor bearings.

On April 13, the chapter held its annual election of officers. The slate of candidates suggested by the Nominating Committee was read. No nominations were offered from the floor. The following were elected unanimously: president, B. F. Wilson, Jr.; vice-president, Dan G. Muller; director, G. C. Musch; sergeant at arms, Clyde Young; the hold-over director being Russell M. Sawyer.

A. M. Casberg, a past national president introduced the guest speaker, S. Averell Cole, NAPRE's National Publicity Chairman and formerly a national director. Mr. Cole spoke briefly of the value of membership in NAPRE, addressing his remarks especially to ten guests who had previously been made welcome.

Our guest speaker, supervisor of perishable transportation of Presco, Incorporated, Los Angeles, and a member of Chicago Chapter, spoke on the construction and operation of refrigerator car precooling fans, outlining their scope of usefulness and their limitations. He stressed the fact that air is an exceedingly poor conductor of heat, and repeatedly emphasized the need of ample time to allow heat to transfer from the center of the loaded car in spite of properly filled bunkers full of salt and ice, and operation of precooling fans. He stated that many shippers of fresh produce do not realize the importance of precooling a refrigerator car before beginning to load it, and then immediately sealing it when loaded. The time element is particularly important when dealing with produce packed in cellophane or pliofilm bags in paper cartons, both of which hinder heat flow, said Mr. Cole.

On April 27 the recently elected officers were installed by R. A. O'Neill, a National Director, Corpus Christi, at a special party in the LaFeria clubroom with members, guests and wives present. An excellent buffet supper was enjoyed before the program.

The new officers were praised by O'Neill for having the proper spirit and interest in NAPRE to fit them for the responsible offices; he gave some personal glimpses into the lives of each and then charged them with keeping the organization riding on an even keel. He had words of praise for the retiring officers and expressed the belief that the new ones would carry on the good work. B. F. Wilson, Jr., San Benito, will now serve as our president. Dan Chapman, Elsa, vice-president; Rube Keener, Mercedes, treasurer; John G. Muller, San Benito, instructor; Armin Doneis, Sr., Pharr, secretary; G. C. Musch, McAllen, director; Clyde Young, San Benito, sgt.-at-arms.

John Muller served as master of ceremonies and presented Herbert Rhodes, accordionist, and Paul Reyes, guitarist. The gathering warmed up to their renditions of Cielito Lindo, Rancho Grande, Over the Waves and a Latin-American polka. They gave the gathering a definitely pan-American flavor. Mary Doneis, wife of the secretary, pleased the group with several vocal solos, one of which dealt with the beauty of the everblooming Bougainvilleas of South Texas; this was a composition of our popular Valley composer, Virginia Fenwick, McAllen.

Mrs. Angus Casberg was introduced by John Muller as the speaker, to which she remonstrated that she isn't a "speaker" but just a plain "talker". She proceeded to amuse the very receptive audience with entertaining sidelights and humorous anecdotes about various prominent chapter members. She claimed to be pinchhitting for her husband, Angus Casberg, who was prevented from participation by business travels. All were delighted with her wit. Among the honored guests present were E. W. Franke, President, Southwestern Ice Manufacturers Association; Jim Sweeney, South Texas Ice & Service Inc.; Lon Yates, Falfurrias, who drove 140 miles to take part, and Mr. and Mrs. Henry Black, Alice, who traveled even farther. Mr. and Mrs. Wm. A. Wooten of Texas and North Carolina were also interested participants.

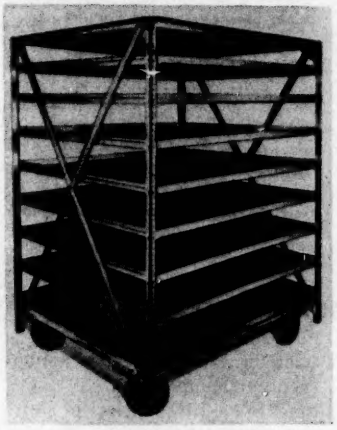
Chicago

JOHN FORTI

ON APRIL 27, at Chicago Engineer's Club, a pre-meeting lecture review course was presented by George Anderson of the Association of American Railroads. This meeting was heavily attended. Anderson's review commenced at the beginning of the Guy King course, and was very well presented to the newer members of the Chicago Chapter attending this meeting.

Following this, business matters were taken care of. President Bert McKenna unveiled the plaque delivered to Chicago Chapter, for the most members in the small chapter class during the past membership drive. Chicago Chapter is striving to keep this plaque indefinitely. Three new applications for membership were voted on and accepted. These are: Rocco J. Emilio, Illinois Bell Telephone Co.; Robert T. Kruppe, Cyrus Shank Valve Co., and Geo. Lee Jenkins, Marhoefer Packing Co., Muncie, Ind.

FREEZER TRUCKS



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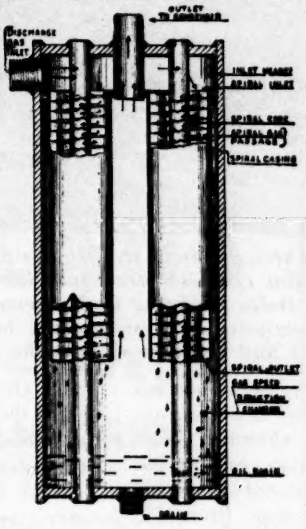

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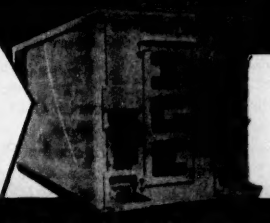

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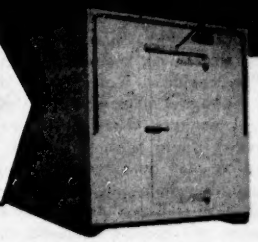

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Vice-president, Lloyd Beard, introduced the guest speaker of the evening, Richard Meyer of the Alco Valve Co., who presented a color movie film prepared by the Alco Co., which gave a very good description of the use and operation of automatic refrigerant controls. Following the movie, a discussion was held as to proper location of expansion valves and thermal bulbs. Several common points of improper installation and location of bulb were touched on. How to locate the bulb and when to insulate the bulb, was explained. Following the above lecture, instructor Eugene Rytlewski answered several question box problems.

Colton

HARRY BONTER

ON April 14 the chapter met at the Santa Fe Ice plant lunchroom, San Bernardino. Carl Hooker, first vice-president, opened the meeting in the absence of president T. C. Bangs. C. H. Purkiss, Educational Program Director introduced Vern S. Cooper, General Electric Supply Co. and Verne Miller, General Electric Co. Sales Department, Riverside, Calif. They showed a color moving picture entitled "Motors in Industry." It compared work being done by hand tools with the automatic electronic continuous operation of machines in manufacturing today, which speed up production and lessen cost.

Members-at-Large

LEROY ETZEL

CONTINUING our intention to acquaint NAPRE with its members-at-large, this month our column will take an imaginary tour through the Pacific Northwest. At Ogden, Utah, let's get acquainted with Robert F. Jones, plant manager, and Warren B. Fox, shift engineer, with Pacific Fruit Express Co. Riding the U.P. on to Pocatello, we can get acquainted with four more members. They are R. R. Willecke, manager, Pocatello Cold Storage; Hubert Branham, an NAPRE director, superintendent of refrigeration, Guy McMillin, shift engineer, and Wesley W. Whitney, head repairman, all with Pacific Fruit Express. At Nampa, Idaho you would find T. T. Lockman, refrigeration maintenance engineer at King's Packing Co., Dale Logan, chief engineer, Terminal Ice and Cold Storage Company, and Thomas D. Spencer is chief engineer, Idaho Creameries, Boise. Over in Washington we can get acquainted with Marion R. Fox, engineer, Walla Walla Meat and Cold Storage Company and H. Aveldson, general manager, Omak Fruit Growers.

Oregon would be next on our trip list where we stop at Terminal Ice and Cold Storage, Woodburn, to see chief engineer, Gardner W. Jeffery. At Stayton the chief engineer of Stayton Canning Company Co-op is M. J. Fehlen. Leslie G. Maness is assistant chief engineer, Northwestern Ice & Cold Storage Co., Gresham, and supervising engineer for Terminal Ice & Cold Storage is H. Dale Young, with headquarters at Salem.

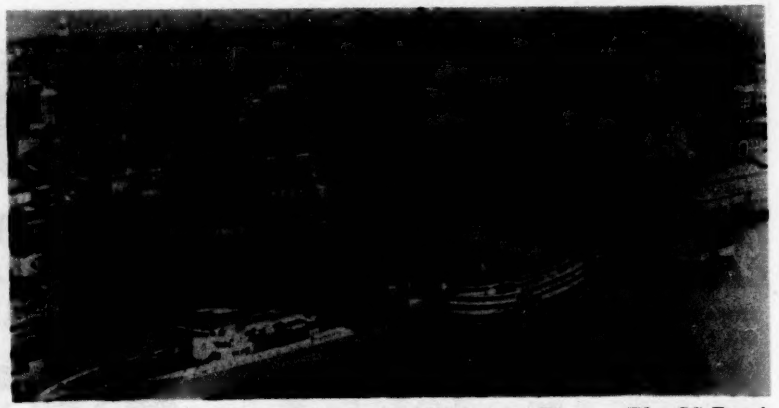
Let's hop up to Alaska to say hello to William P. Sterling, refrigeration general foreman for the Post Engineers of Fort Richardson. While we are there we can also call on engineers Herman W. Buskirk and Virgil Breshears. When can we start a chapter up there fellows?

From Alaska let's go down under for a few calls and get acquainted with director and refrigerating engineer Robert A. Boell of Boell Ice Co., Fitzroy, Australia. At Melbourne we can pay our respects to secretary and director Robert John Slessar with R. Werner & Co. Members in Sydney include directors William George Cropper and Thomas Andrew of Cropper, Andrew Proprietary.

A few other members at large, not mentioned previously in this column, but nevertheless not intentional, are N. S. Chadha, manager and engineer in charge of C. R. Cold Storage and Ice Factory, Agra, India. A former New Yorker, now assistant manager of equipment and installations branch, Frankfort Central Exchange, U.S. Army, is Arthur W. Stedman, now living in Frankfort, Germany. Member Robert V. Brown is the engineer and partner of Allied Industrial Service, Caracas, Venezuela. Sales engineer for Frick Company Factors in Mexico City is Member Francisco Requena Mas.

New Orleans Announces Convention Plans

APPOINTMENT of the ladies' committee for the annual NAPRE convention to be held November 2 through 4 at the Roosevelt Hotel, New Orleans, has been announced by Addison E. Wegener, convention program chairman. Mrs. Leo J. Vivien will head the ladies' group. Included in the ladies' committee are Mesdames John Bryner, Addison Wegener, Jerry Vieagas, Edwin Ford, Louis Howat, Frank Chase, George Whitman, Damian Fischer, John Mariakas, Max Sofer, Eugene Orth.



A view of New Orleans from the Mississippi River. The SS President, million dollar all steel Streckfus river excursion boat, is pictured, next to a Delta Shipping Co.'s ocean-going, South American trade vessel. Tentative excursion plans have been made for the NAPRE ladies and children during the convention this fall.

The ladies hadn't given any announcement of their plans to convention publicity chairman Dan Behre, but information reaching the local chairman indicated an excursion on the Mississippi River for NAPRE wives, guests and families will be in order. In all probability the picnic type excursion will be aboard the SS President, a million dollar all steel vessel designed for this purpose. Other evening socials include the usual informal party, a chapter party and the annual convention banquet.

While on the subject of ships, publicity man Behre was also quick to point out that many NAPRE members would be extremely interested in the seagoing vessels which put into New Orleans. One of the heaviest trades of perishable commodities handled by the Port is bananas and fruit. Both the Standard Fruit Company and the United Fruit Company have extensive operations at New Orleans. Their vessels are specially designed and built for this refrigerated trade. Other lines making headquarters in the Port include those engaged in trades, whose vessels also have substantial refrigeration plants.

Many lines maintain refrigerated wharfs in connection with their activity. Both Wegener and Behre felt that many of the members would be interested in side trips to such Port facilities. "Don't forget", said Wegener, "we expect that the NAPRE members this year will make this a vocation-vacation convention".

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Question Box

The National Educational Committee, NAPRE, answers monthly in this column, operating problems forwarded by members. The Committee appreciates answers from the field. Both questions and answers should be addressed to Prof. H. G. Venemann, 269 Littleton St., West Lafayette, Ind.

Eutectic Solutions

QUESTION NO. 1001: We are distributing ice cream on a cream pick up route and carry the ice cream in an insulated box. We have been cooling the box with a preparation called "Sno-Gel". It is a sort of jelly like substance put up in plastic containers but these containers do not stand up. What is this "Sno-Gel" made of or is it some sort of secret or patented preparation?

We are considering putting a weak solution of calcium brine in small cans. a pint or so, and freezing them in the hardening room and using them to refrigerate the box on the truck. The ice cream is cooled to minus 15 or 20 F before being loaded. Do all these solutions such as are used in cold plates expand when frozen, and how are they treated to overcome the corrosion factor? We intend to use dry ice this summer, altho it is not too convenient to get and store.—J.N., Nebraska.

ANSWER: "Sno-Gel" is a powder which can be mixed with water in various proportions to give selected melting points below 32 F. The manufacturers of Sno-Gel issue several bulletins on this material, but give no information concerning its chemical composition nor its thermal properties such as specific heat, latent heat, etc.

Our Purdue ice cream plant uses calcium chloride solutions inside of galvanized iron containers for holding ice cream for customer trade. These containers are cylindrical in shape, about 2 inches thick and of a diameter to fit inside of tubs or paper containers for various quantity deliveries. These containers are not completely filled, so do not expand sufficiently to do harm. The solution should be treated like brine with a pH value of 8 to 8.5, and with sodium chromate or similar inhibitor. In my text book "Refrigeration theory and applications", pages 183-186, is an explanation of how brines may be used, and also the holding capacity at various concentrations and temperatures.—H.G.V.

Room Sweating and Product Dehydration

QUESTION NO. 1002: In order to accommodate certain home grown fruits from my farm, and other items such as citrus fruit from Florida, I built under the porch of my home with entrance from my basement, a cool room, using an approved seal-type compressor located in basement and a circulating fan within the cool room itself, the refrigerant used being F-12.

I maintain therein a temperature of between 38 to 42 F which over a couple of years seemed to give satisfactory results, but of late and particularly this season I am experiencing spoilage and dehydration in the fruit and vegetables to the extent that I feel there is something wrong. The condensation from the coil and circulation fan is carried through pipe to the gravel below floor of room, but at times and particularly of late it seems there is more condensation than is carried away and drip occurs from various points within the room.

Could you advise me on what to seek as perfect conditions for such an operation; what temperatures are best for certain of contents above mentioned and what corrective measures you would suggest to accomplish most favorable results.—P.S.C., Indiana.

ANSWER No. 1: Dehydration troubles would not usually occur when there was excess condensation. Also, heavy condensation may occur through the walls and ceiling after several years because of insufficient insulation, poor insulation, or failure to vapor seal the insulation. In this case, the walls and ceiling may have to be vented to the inside in order to dry out the insulation.—H.G.V.

ANSWER No. 2: I am a little uncertain as to the manner in which this room is being utilized, but if it is being used as general storage for a number of items at one time, this could be a source of trouble. For example: Apples would store best at approximately 33 F. with 90-100 percent Relative Humidity; Potatoes at 40-45 F with 85-90 R.H.; Onions at 31-32 F with 70-75 R.H.; Sweet potatoes at 55-60 F with 80-90 R.H. Onions stored too warm will sprout, stored in too high a relative humidity they will develop roots and shrivel, and should they become warm and moist rots will develop.

Too, volatile emanations from one products may stimulate another to a higher rate of respiration with consequent increases in carbon dioxide and moisture evolution. A high CO_2 content could account for certain physiological breakdown and high moisture evolution for excessive condensation. So you see that conditions are pretty specific for the various items and if the precise conditions required for a given item are not adhered to, a number of difficulties could arise.

I would suggest that first you get a competent man to check your equipment and room, then try to use the same commodity groupings and conditions which were satisfactory in previous years.

One of the extension men in the department told me that he had heard of some shriveling in storage which was attributed to the very unusual temperature and moisture conditions last summer. Certainly we know that pre-storage treatment can be a significant factor in storage life. Therefore, this may have been a factor in your de-hydration problem.—M. E. Patterson, Dept. of Horticulture, Purdue.

Direct Radiation Cooling

QUESTION NO. 1003: Re "Warehouse in 100 Days" February INDUSTRIAL REFRIGERATION on page 29 under "Refrigeration" subhead, author refers to ". . . effective cooling by direct radiation". Was that the correct word, radiation, or did he mean direct expansion? Or did he mean more effective cooling through the theory of natural convective currents over and around storage, the heavier cold air displacing the warmer air below? It will certainly be appreciated if you would let me know if radiation was the word or if it should have been direct expansion. Any other comments about that particular subhead might be helpful.—R.K.

ANSWER: In my article wherein I stated ". . . effective cooling by direct radiation", is correct. I believe this method of cooling is more effective than most people suspect. As an example you leave your car out on a very clear night, the air temperature is around 65 to 70 F, it will collect dew in a very short time. Why? The sky or stratosphere is about minus 60 F. This absorbs the heat from your car by direct radiation, thereby dropping its temperature below the dew point of the air around it, which cools off slowly. The air is finally cooled by convection currents from objects which were cooled by radiation.

Professor Wm. T. Miller, Purdue, first excited my interest in this at the Convention in 1949. He stated that he was testing some instruments in two different freezers. In one the evaporator surface of minus 60 F was exposed; in the other it was behind a partition, still at minus 60 F. The room in each case was minus 10 F. He was required to be in each room about five minutes to take all the readings. In the room where the partition was he felt no unusual discomfort, but in the one with the exposed evaporator he was chilled to the bone in just a few minutes.—R.G.

Crankcase Pressure Device

QUESTION NO. 1004: I'm refrigeration supervisor at a U. S. Air Force Base. On several new installations I notice they have installed a crankcase regulator—a sort of an evaporator regulator in reverse, to keep a certain pressure in the crankcase so as not to overload the motor, I think. Is this really any value, and wouldn't a pressure limiting expansion valve serve the same purpose?—C.B., Alaska.

ANSWER No. 1: I am not familiar with the crank case regulator you mention, but recently I received some instructions on a similar valve used on Frigidaire compressors. A pressure limiting expansion valve might serve to maintain a fixed pressure, but such a valve has many serious objections when used for automatically controlling liquid flow. For example, a

The Case of the Unwanted Thumbprint

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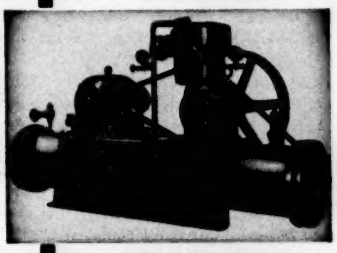

John Q. Engineer studied his financial statement with dismay. "Could it mean that old "Dirty Thumb" Obsolescence is here in *my* plant? Yes, there are his prints all over my profit sheet!"

Startled, "J.Q." called in the Howe "private eye". Quickly they found the culprit hiding in the obsolete, inefficient refrigeration system. The unseen losses had been robbing "J.Q." *cold.*

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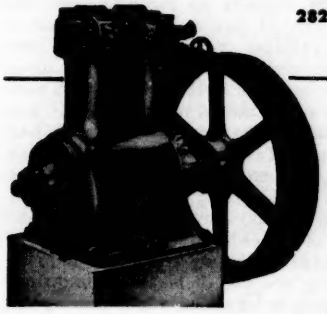

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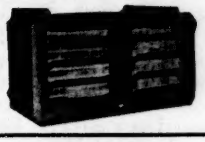

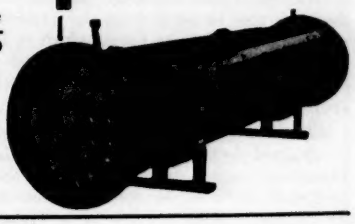

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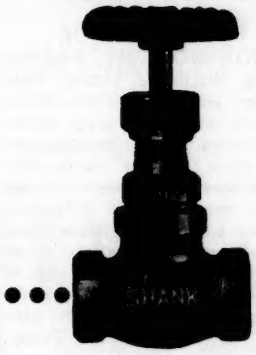

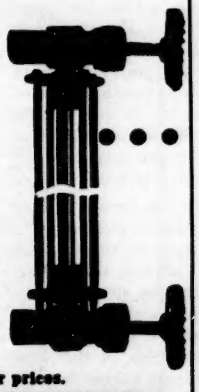

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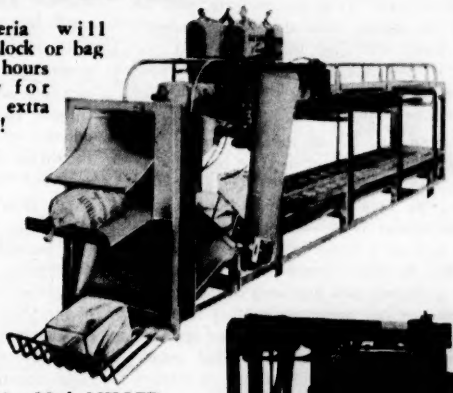
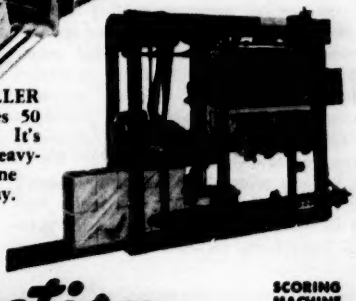


Perfection-Made MILLER 300 lb. model scores 50 tons of ice per hour. It's the lowest priced heavy-duty scoring machine on the market today.



Perfection

ICE SCORING MACHINE

SCORING MACHINE PARTS AVAILABLE FOR IMMEDIATE DELIVERY

P.O. Box 2140, Fort Worth, Texas

constant pressure valve often starves the coil at the beginning of the operating cycle, and floods the cylinder at the end of the cycle.—H.G.V.

You may be interested in the instructions applicable to an F-12 system used for mechanically refrigerated railroad cars:

Crankcase Pressure Regulating Valve: The Frigidaire crankcase pressure regulating valve, Model CRV-8A, is a throttling valve which is designed to limit the maximum crankcase pressure and thus prevent motor overloading when starting up under high ambient temperatures or extremely high head load.

When the condensing unit is shut off for an unusually long time, the cooling unit pressure rises and compresses the bellows and spring to tightly close both valve seats. When the condensing unit is started, the cooling unit pressure is gradually metered into the condensing unit through the small valve opening. This condition continues until the pressure is reduced to a point where the large valve opens wide. The amount of valve opening is controlled by the crankcase pressure and the valve may be set to limit this pressure to any point within its range, which is 10 pounds to 28 pounds. The recommended setting for this particular application is approximately 28 pounds.

Adjustment: The setting of this valve is obtained by the manipulation of the adjustment screw. Turning the screw clockwise increases the spring tension on the bellows, which results in a higher operating pressure of the valve and raises the crankcase pressure. Turning the adjustment screw counterclockwise decreases the spring tension on the bellows and results in a lower closing pressure of the valve. The pressure setting of the valve can be determined by observing the low pressure gage. (Car temperature must be 40 F or above, with the unit running). The most desirable time to adjust the valve is when the car temperature is being pulled down; preferably during the higher temperature range.

ANSWER No. 2: As the applications for refrigeration have increased, it has become more and more apparent that a control valve was necessary to protect the compressor motor from overload and possible burn out as a result of excessive suction pressure at the compressor.

To a degree, this has been accomplished by the use of pressure limiting type of expansion valves on small tonnage systems. However, on systems with flooded evaporators, the pressure limiting expansion valve cannot by itself limit the excessive suction pressure caused by a prolonged shut-down period with a large refrigerant charge contained in the low side. Where the hot gas principle of defrosting is used, the pressure limiting expansion valve cannot by itself prevent excessive suction pressure from being imposed on the compressor.

Suction Pressure Regulators (Hold Back Valves) should be used on any installation where compressor motor protection is required because of:

1. High starting loads.
2. Surges in suction pressure.
3. High suction pressure caused by hot gas defrost.
4. Prolonged operation at excessive suction pressures.
5. Low voltage and high suction pressure conditions.

Specially constructed regulators are available for limiting the maximum suction pressure in the vacuum range in some designs on special order. The Suction Pressure Regulator cannot be used to limit the Evaporator Pressure.

The Suction Pressure Regulator should normally be selected for the required capacity at the lowest pressure drop across the valve for economical compressor operation.—Arthur C. Sievers, ALCO.

Stainless Belt Corrosion

QUESTION NO. 1005: We have a problem with two flake ice makers. The stainless steel belts are practically eaten up with holes from inside after six months use and sometimes less, due to corrosion. Calcium brine is made up from city water taken from the Mississippi River; less than six grain hardness. The manufacturer has been unable to solve the trouble; the contractor who installed the machines in 1950 is unable to find the answer.—J.C., Ill.

ANSWER: Upon receipt of the blue print of your flake ice maker, I wrote to the manufacturer. They state that your troubles must be electrolytic. I have given the matter considerable thought and, without examining the nature and location of the corrosion effects on the stainless steel plates, I am unable to give you any definitive advice.

(a) If your trouble is due to electrolysis because of some external source of electric current you could stop it by properly grounding your machines.

(b) If the electric current is set up within the machine itself and is causing a galvanic action, often referred to as electrolysis, there should be evidence of metal deposit on inside of the drum. This you should be able to see when you renew the so-called "belt".

(c) If it's a matter of corrosion and not electrolysis or galvanic action, the cause will be difficult to find. However, your instruction bulletin has been very careful to advise you about the proper treatment of the brine, first as to its proper pH value, and second as to the use of an inhibitor to retard corrosion. If you have not been following these instructions very carefully you will certainly court early corrosion.

(d) A final thought has been suggested to me by one of our metallurgists. He tells me that there are stainless steels which are more resistant to corrosion than T 302. He also suggested that the strains set up by the flexing of the stainless steel belt could result in premature corrosion. He also asked about any welds in this belt, and of course I could not answer because the drawing does not show how the seam is held together.

Sorry I cannot help you, especially if you have conscientiously followed manufacturer's instructions.—H.G.V.

New Questions

Data on Finned Type Evaporative Surface

QUESTION NO. 1005: Where can I find a table or data on the proper lengths of finned type evaporative surface to be used with a single expansion valve? I can see where such cumulative data might be quite involved, since it would vary with the pipe diameter, the fin surface, the T.D., and possibly the rating of the expansion valve, gas velocity, etc. Anyway manufacturers of certain coils I have been using with F-12 have not supplied any data.—G.V.B., Chicago.

Bearing Alignment

QUESTION NO. 1007: At Rio Grand Valley Chapter, instructor Muller brought up for discussion the problem of bearing alignment on a twin-cylinder vertical enclosed ammonia compressor, in which the three main bearings were replaced with new ones at the time a new crankshaft was installed. The original crankshaft had broken. Tests showed that after due care was exercised in assembly, there was considerable distortion indicated between crank-throws. Various methods of procedure were discussed, to remedy this strain and distortion, including the use of lapping compound, scraping-in the one high bearing or line-boring the high bearing, in order to get a zero reading on the alignment gauge at all points of crank travel. The bearing inserts were factory-made, and there was little likelihood that any distortion of the compressor base has taken place, yet there was a definite misalignment. Since all three bearings are integral with the base no easy adjustment is possible by shifting one or the other bearing. Any suggestion from other NAPRE'rs?—A.F.D.

Vibrating Discharge Piping

QUESTION NO. 1008: Problems of vibrating discharge piping from twin cylinder compressors raised the question as to whether a surge chamber in conjunction with re-arrangement of piping close to the compressor would be a feasible solution. It appeared that the alternate pulsations from the two adjacent cylinders could be smoothed out some in the surge tank or eliminated. But the size of surge tank required for the job remained a question without an easy answer.—A.F.D., Rio Grande Valley.

Damaged Castings

QUESTION NO. 1009: At Rio Grande Valley the repair of damaged castings resulting from misalignment came up for discussion, and various cold-weld processes like Metallock were referred to briefly as means of mending racked castings. The available information at the moment was scant, and any further data that can be given on the proper repair of heavy castings and compressor frames will be welcome.—A.F.D.

When it's a question of new refrigeration coils, it's no time to speculate on dependability or to compromise on quality. And where it's a question of assuring efficient, uninterrupted operation and low maintenance throughout the years—

NATIONAL
REFRIGERATION COILS

offer you the benefits of over 70 years' specialization in the pipe-bending field: experienced engineering and exact production, with smooth bends, perfect welds, and accurate measurements.

Whenever you need coils, write for our free tracing-chart which shows standard dimensions ready to fill in. It will simplify your specifications—whether for zig-zag or nested box or conical or round-flat or reducing coils.

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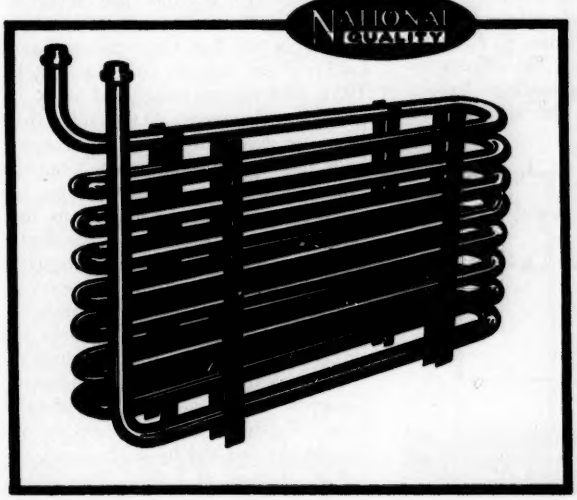
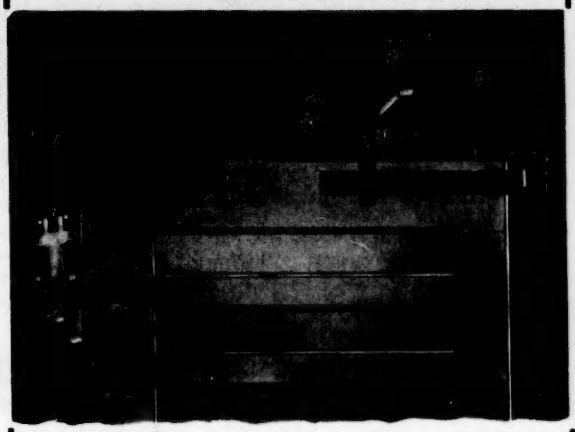
Established 1883



Prevent

COLD ROOM LOSS



with . . .

AIR-LEC DOOR OPERATORS

Air-Lec, shown installed above the cooler door, opens and closes the heaviest doors quickly, safely and smoothly at the touch of a switch or the light pull of a cord. Available with Mechanical Trip for one or two operating stations above each door approach, or with Electrical Switch for more and distant stations. Air-Lecs are in use in thousands of factories, food freezing and storage plants, meat packing companies, garages and service stations. Speed and Safety are characteristic of Air-Lec because Air-Inertia-Spring, all elastic forces, are the patented forces used.

AIR-LEC FOR TYPICAL COOLER DOOR. . **$65.00**

. . . AND AIR SEAL

Installed at left of door in illustration, the Air Seal operates in conjunction with Air-Lec, to provide an absolute seal on cooler doors. Air Seal crowds the outer edge of the door to stop improper circulation and frosting. Air Seal is especially desirable where temperatures below freezing are maintained.

AIR-SEAL. $25.00

NOTE HOW THEY RE-ORDERED AIR-LECS

	Recently Ordered	Now Enjoy
Williamson Storage & Ice Co. Williamson, N. Y.	1	4
Fisher Artificial Ice & Cold Storage Co. Dubuque, Iowa	2	6
Kraft Foods Co. Springfield, Mo.	1	25
Alford Refrigerated Warehouses Dallas, Texas	4	96
First National Stores, Inc. Somerville, Mass.	2	16

Fill in and return the coupon today for complete information.

SCHOELKOPF MFG. CO., Madison. Wis.

Cooler Doors are ____ Ft. Wide, ____ Ft. High. Air Pressue ____

Open Toward Warm Side, Cold Side.

Firm Name .....

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SCHOELKOPF MANUFACTURING CO.

312 N. THIRD ST., MADISON 4, WIS.

Metal for Handling Calcium Chloride Brine

QUESTION NO. 1010: What metal is best suited to handle calcium chloride brine? I refer to duplex steam pump valves. We are overhauling our one steamer and find most of the suction and discharge valves jammed and stuck shut — but good. This is a new one on me. These valves, seats, studs and nut are all iron. Is there a better metal for this job? How does stainless steel stand up on this job, also bronze or brass?—R.G.S., Buffalo.

Ice Conveyor Modifications

Syracuse, N.Y.

Following are my comments re illustration on page 18, July 1953, issue of *Ice and Refrigeration*, "Mechanical Handling Ices Refrigerator Cars at New Icing Dock":

The illustration would have looked much better if the broken pushers on the trolley conveyor system which moves ice from manufacture to storage, then out of storage to dock conveyor, had been repaired.

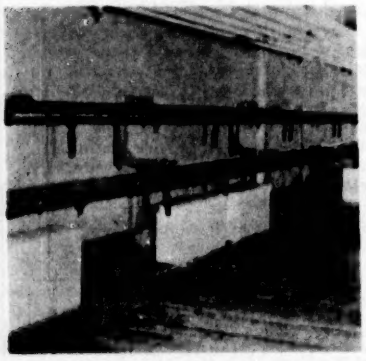


Fig. 1 — In the ice house, a trolley conveyor system moves ice from manufacture to storage, then out of storage to the dock.

In 1922, I was assistant to the superintendent of several ice plants in Baltimore and Washington. We were electrifying a plant in Baltimore, putting two ice tanks where boilers had been located, and had to have two conveyors to carry the ice on edge, end ways, from dumps to storage room, about 70 feet. The ice was to be pulled three cans at a time into the end of the conveyor.

The representative of the conveyor firm and the ice superintendent decided to use an overhead endless chain with high attachments to push the ice. Sprockets were to be vertical, and the runway was of angle iron for the chain attachments to travel on, held in position by iron frame supported from the floor at side walls of tank room. I told them it would be impossible for the tank men to dump the ice so that it would always pass under the sprocket wheel before a high attachment came around. Two of the blocks had to make a side movement to get into the runway, and if one should stop under sprocket something would be wrecked when high attachment passed under sprocket.

I had the erecting job, so I changed the arrangement of sprockets at dump end of conveyors as shown in Fig. 2. This swivel or joint worked with no trouble, even when a block of ice did stop under sprocket before the tank man could push it ahead.

This device was in use from 1922 until 1927 when we changed to whole row lift, and from 11½ x 22½ to 11 x 22 cans. Plenty of ice stopped under those sprockets in the five years they were in operation, but there was never any trouble with them and what a simple thing it was to make. I don't see why equipment people, ice-men, and engineers could not learn in thirty years how to build a conveyor that would work without breaking the pushers off.

MARION S. JONES

Conference Reviews Safety Progress

THE National Occupational Safety Conference, convened by President Eisenhower May 4 through 6, included representatives from the industrial refrigeration fields. W. F. Leonard and Sloan Childers, of the Ice, Cold Storage, and Locker Plant Div., National Safety Council, and J. Richard Kelehan, National Secretary, NAPRE and of INDUSTRIAL REFRIGERATION staff, were among the conferees.

President Eisenhower opened the conference with a brief talk. He told the delegates that days of work lost last year because of occupational accidents would have been sufficient, if pooled, to build one million six-room houses. "If you help reduce this appalling bill, then you will indeed be doing something for the United States," the President said.

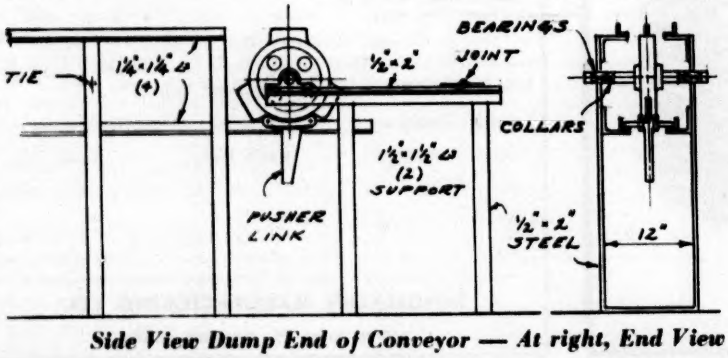
Secretary of Labor, James P. Mitchell, presided. Following the National Conference, the Food Section met in executive session at the Sheraton Park Hotel, Washington.

High points of the conference were summed up by Chairman W. F. Leonard, Jr., as follows: The efforts toward creating enthusiasm about safety, and that is the springboard for all safety men in the country to do more in their local communities, as promoted by the President's Safety Conference, was good. This encouragement was generally accepted by everyone, however, with the hope that government influence is carried no further in the efforts of management to sell safety to their employees. "I think, most generally speaking," said Mr. Leonard, "most safety authorities figure that this is management's job."

The committee chairman pointed out that possibly the conference might be more effective and more successful in selling its objectives with a small business section truly represented at the next conference. In other words, segregate the big companies and the small companies represented, and probably get more real value out of the conference.

Mr. Leonard's Division report to the Food Section in summary: Approximately 600 blank forms covering employee injuries and accident reports has been sent monthly to key people in the Ice, Cold Storage and Locker Plant Industry since January 1, 1954, and the percentage of reply is about 8 or 9 percent. At the end of this year, all this material will be turned over to the National Safety Council Statistics Department in Chicago, in order to compile a story as to the frequency and severity of accidents in the industry. No such figures have been accumulated for several years. The Division will continue to circulate approximately 900 letters on safety to key people in this industry.

Prominent on the information pamphlet table at the President's Safety Conference, was a supply of handbooks put out by U. S. Dept. of Labor, Bureau of Labor Standards.



Side View Dump End of Conveyor — At right, End View

Milwaukee Cold Storage Plant Starts Expansion

CONSTRUCTION has started on the first unit of a large cold storage warehouse for Mohawk Refrigerating Co. on W. Burleigh St. in the town of Wauwatosa, Wisc. The general contract for the building has been let to Hunzinger Construction Co., it was announced by James H. Kuehn, vice-president of Mohawk. A November 1 completion date is anticipated.

Last August, Philip G. Kuehn, president of Wisconsin Cold Storage Co., with which Mohawk is affiliated, disclosed a long range goal of establishing the principal wholesale food distributing center of the Milwaukee area in the town of Wauwatosa area.

He said at that time that cold storage warehousing was the initial requirement for such a center and explained that his organization expected to bring other food organizations into buildings which would be built on the 75-acre tract a quarter mile west of Highway 100.

The concrete structure of basement and two floors will contain 100,000 square feet of floor space and provide approximately a million cubic feet of storage space, Mr. Kuehn said. Concrete tiltup panels will be used in erecting the largely windowless building. The warehouse will have two 16,000 pound hydraulic lifts and both truck and railroad loading docks. Office space will be available for tenants on the second floor.

Merchants Builds Addition To Modesto Plant

CONSTRUCTION of an addition to the Merchants Refrigerating Company plant in the east Modesto industrial district, California, is underway, with completion scheduled for July 25.

John Beard, vice-president and general manager, said the 178 x 203 foot reinforced concrete storage building will expand the Modesto facility 20 percent making it equal to any on the Pacific coast. The total capacity of the warehouse will then be 2,250,000 cubic feet. A temperature of minus 10 F will be maintained in the new warehouse, with the central engine and compressor room expanded to meet the additional freezing requirements.

Merchants Refrigerating Company, with executive offices in New York City, acquired the Modesto firm last October. At the time Arthur N. Otis, president of the Merchants Refrigerating Company, said the acquisition of the Modesto plant would permit the Company to keep pace with the rapid development of the frozen food industry in the west. Richard Lyng, Chamber of Commerce president, said at the informal ground breaking ceremonies:

"This is an excellent indication, from the chamber's point of view, of the worth of Merchants Refrigerating Company. Within a few months after making the large capital purchase, the firm has demonstrated its confidence in the community by the expenditure of hundreds of thousands of dollars for additional facilities."

Mr. Beard said the plant stores agricultural produce from throughout Northern California, including fruits, vegetables and poultry. He said the addition of warehouse space has been a result of the rapid growth of the frozen food industry in California.

In addition to the Modesto plant, Merchants Refrigerating Company has warehouses in New York City, Jersey City and Newark, N. J., Buffalo, N. Y., St. Louis, Mo., and Hopkins, Minn.

install
peak performance
into your
compressors
(AIR · GAS · AMMONIA)

Peak performance, maximum efficiency, greater output, and lower power costs can be built into your oldest, and of course your newest, compressors by the installation of VOSS VALVES.

Check THESE VOSS VALVE ADVANTAGES:

✔ Quiet, vibration-free operation ✔ 20 to 60% more valve area ✔ less power consumption ✔ minimum pressure loss ✔ normal discharge temperature ✔ lower operating costs ✔ utmost safety

Our detailed proposal for increasing the efficiency of your compressor will be sent you without obligation. Send us the name, bore, stroke, and speed of your machine.

VOSS VALVES

Spring Cleaning In The Ice Industry

IN the manufacture and sale of Ice, "Spring Cleaning" is equally applicable to all season, and, for that matter to every day of the year. This year, however, cleaning takes on unusual significance. There's a lot of sanitation activity about the country. There are new ordinances in force, and there are others in the making. There has been a revival of some of the sanitation reports affecting the use of ice. And, there is renewed vigor in many of the campaigns carried on by the public health people.

Activities such as these should be all the suggestion that any manufacturer of a food product needs in order to stimulate him to check his operation to be sure that his program is adequate, and that it is being carried out.

Observance of the ordinary rules of good housekeeping and a full and complete acceptance of the fact that Ice which goes into foods and beverages is just as much a part of these foods as any of the other ingredients, will do much to safeguard the Industry's high standard of quality and cleanliness.

"Be Clean or Be Cleaned" is just as appropriate today as it was when the term was first used seven years ago. So now's the time to make a critical examination of your sanitation program. Now's the time to keep your operation so it looks clean! Now's the time to keep your operation so it is clean!—Ice News.

Canadian Spring Conference

THE spring conference of the Canadian Association of Ice Industries held at Toronto April 6 was a most successful event. Forty-seven icemen were present and learned much to profit by during the various discussions of merchandising, distribution, costs, manpower, sanitation and diversification.

One of the high spots of the conference was a presentation of the channel ice method of displaying fresh vegetables. Representatives of Wrigley Stores, Inc., one of the big super markets of Detroit, Mich., described and demonstrated this method. Losses with this method, they said, do not exceed 2½ percent as compared with loss of 4½ to 5 per cent with the former ice method.

Indiana Ice Men Exhibit At Grocer's Convention

IN cooperation with Trusty Manufacturers, Inc., LaPorte, Ind., The Indiana Association of Ice Industries again had an exhibit at the Annual Indiana Grocer's Convention at the Claypool Hotel, May 9-10. Special displays of iced produce, channel icing and conventional icing methods were shown.

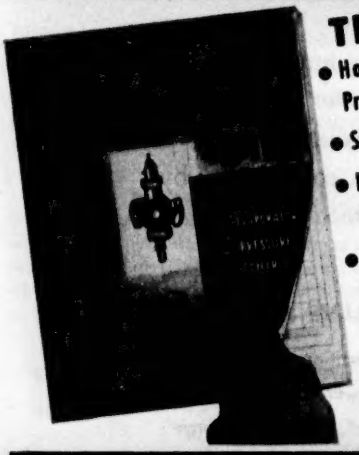
Four Roses Used in Ice Cake in Advertising

FOUR ROSES' familiar cake of ice with the roses frozen inside will again be used as summer theme by Frankfort Distillers Corp. starting in June. Full page, full-color ads in leading national magazines will be backed by supporting schedules in local media. Point-of-purchase promotional aids will also be used.

Ice Company Incorporated

THE Frazer Ice Company, Inc., manufacturing ice, 3000 Lee avenue, has been granted charter of incorporation listing capital stock of $20,000.

Just Off the Press!



TELLS:
- How to install Back-Pressure Valves
- Specifications
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- Facts pertinent to effective installation of controls.

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NEW Wolf Linde CATALOG 16-B
EVAPORATOR PRESSURE CONTROLS
DERSCH, GESSWEIN & NEUERT, Inc.
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Monarch MODEL 50

Bateman All-Steel ICE CRUSHER

The Bateman all steel MONARCH Model 50 Ice Crusher is galvanized for the prevention of rust. Slanting hopper for easy loading, with shelf for placing ice on before entering crusher. Hopper opening — 12½"x15". Uses 1 HP. motor with V-belt drive. All moving parts move on either ball or roller bearings. Gears are of alloy steel hardened for long life and trouble free. Steel shell, legs, grates, grate handle and alloy steel teeth. Belts and pulley furnished when crusher is ordered without motor. Side plates and bottom of hopper 3/16" steel. Price $235.00, less motor. Motor at prevailing price.

Write For Details

Bateman Mineral Wells, Texas
Ice Processing Equipment

Ice Association Brings Service to Members

(*Continued from page* 18)

icing, truck icing, use of ice for air conditioning automobiles, sanitary ice, and road signs.

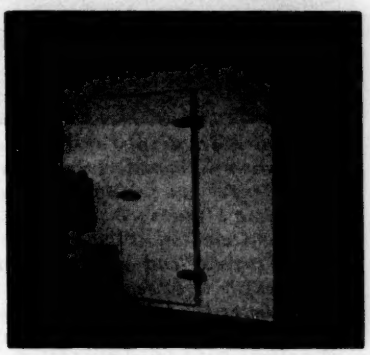
Particular interest was shown in a discussion of ice vending stations. An Indiana ice manufacturer and distributor said they had gone in for ice vending on a rather large scale. One plan which they particularly like is to provide ice for vending stations owned by a vending syndicate, located at filling stations, grocery stores and other places where an attendant can be on duty. In this arrangement the operator takes care of the station, telephones the company when it gets out of order and otherwise looks after it and the ice company keeps it serviced with ice as needed. For this service the operator receives 20 percent, the vending syndicate 30 percent and the ice company 50 percent. When the ice company owns the station the division of profits is made to the operator, 20 percent and to the ice company 80 percent. The point was also stressed by this operation that there is a far greater sale of 50 pound blocks of ice than of 25 pound blocks

The session was closed with a number of impromptu suggestions as to how the national association could better serve its members.

and they are gradually converting all their vending stations to sell 50 pound blocks only, in addition to bags of ice cubes and crushed ice.

New Ice Vending Equipment

A NEW line of vending equipment is being offered to the Ice Industry. The vending units and stations were designed and are being manufactured by the Taylor-Made Ice Vending Manufacturing Company of Eupora, Miss. Equipment is available for handling both block and bagged ice. One of the chief advantages claimed by the manufacturer for the equipment is that by use of a new principle the "on-vendor" capacity has been greatly increased. This reduces the frequency of loading the units. The stations are being made in several sizes.

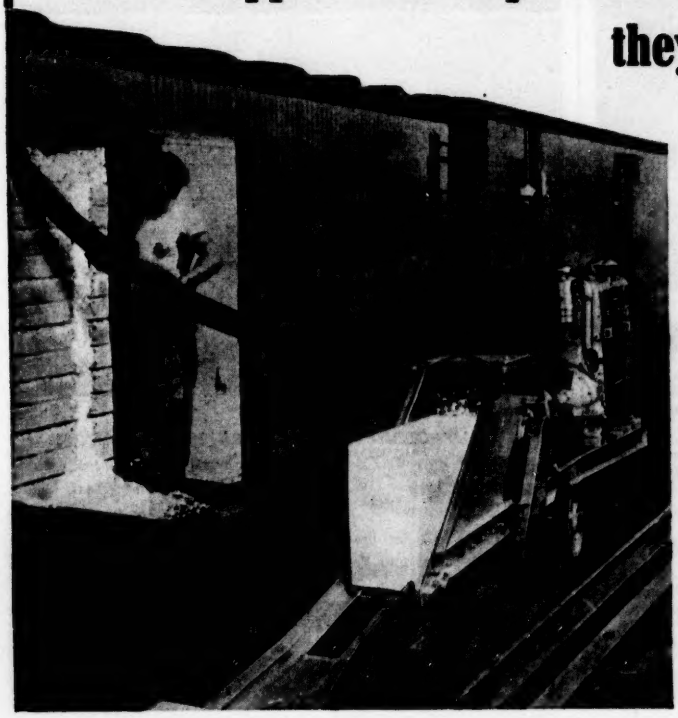


Taylor-Made ice vending house

The houses are of all metal outside construction, mounted on steel runners and covered with canopy top, which permits free circulation of air, thus greatly reducing refrigeration requirements. The stations are vapor sealed with fiber glass insulation; walls and ceilings are of heavy plywood, with hardwood floors. All lumber used is specially treated.

When desired deliveries are made on a special lowboy from the manufacturing plant at Eupora, Miss., to vendor location at a cost of 30 cents per mile one way. The houses are painted to conform with individual purchaser's color scheme. The one shown in the photo is white with red trim.

Give shippers the improved refrigeration service they require today



THERE'S no better way to top-ice railroad cars and trucks containing perishable products than with a Link-Belt Ice Crusher-Slinger. It's fast, effective, easy, economical. Moreover, it assures shippers of fruits, vegetables, seafoods and dairy products that their merchandise will arrive in tip-top condition—demand top prices.

With only a small investment, you can sell better ice service . . . boost your business . . . increase your profits. Choice of stationary or portable—electric or gasoline engine powered machines. Capacities from 15 to 60 tons per hour. Your nearest Link-Belt district office can supply complete information. Or write for new Book 2382.

LINK-BELT

13,438 ICE CRUSHER-SLINGERS

LINK-BELT COMPANY: Executive Offices, 307 N. Michigan Ave., Chicago 1. To Serve Industry There Are Link-Belt Plants and Sales Offices in All Principal Cities. Export Office, New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World.

Dual Temperature Insulation For Pipes

DUAL Temperature Pipe Insulation made of Fiberglas is announced by Owens-Corning Fiberglas Corp. It is designed to give maximum efficiency to pipe lines operating at low temperature or at alternate cycles of high and low temperatures. A factory-applied vapor barrier encloses the insulation to prevent condensation on the surface of pipes carrying a cold fluid through a warm, humid area.

This insulation is made of fibrous glass bonded with a thermo-setting binder; it is pre-formed in easy-to-apply hemi-cylinders and segments that fit all standard pipe and tubing sizes. A vapor barrier of laminated asphalt saturated kraft paper and aluminum foil is adhered to the insulation.

For pipe sizes up to and including 12 inches diameter, the insulation is furnished in hemi-cylinders with the vapor barrier jacket attached; insulation for pipes having diameters greater than 12 inches is furnished in three segments to 28 inch pipe, inclusive; and in seven segments for pipe to 33 inches. The jacket is sup-

Application details of Fiberglass Dual Temperature Pipe Insulation. 1 - Insulation is manufactured in a variety of sizes and thickness for all standard pipe and tubing dimensions. 2 - Sealing the vapor barrier flap. 3 - Applying a four-inch wide strip at the end joints. 4 - The vapor barrier should be sealed off at each valve or fitting by troweling a layer of mastic over the exposed end of the insulation and spreading it around the pipe to form a vapor tight seal. Fiberglas Aerocor Type PF-316 is then wrapped around the fitting until it is equal to the thickness of the insulation. A 1/4-inch layer of insulating cement is spread over the Aerocor and the job is finished with a 1/2-in layer of vapor sealing mastic.

PHILLIPS
FLOAT CONTROLS

STANDARD with the FINEST in REFRIGERATION

With refrigeration manufacturers whose products are famed for quality and dependability, Phillips Controls are standard equipment. On new or older equipment, Phillips Controls bring greater efficiency, more dependable performance. Capacities range from 1 to 1,000 tons for Freon, from 1 to 2,000 tons for ammonia. Full information and engineering advice gladly given.

SERIES 300 PHILLIPS FLOAT CONTROLS
- SERVICEABLE — No "pump-down" needed to inspect or renew cartridge.
- ADAPTABLE—For most types of flooded evaporators.
- COMPACT—Mounts directly on surge drum.
- IDEAL for storage tanks, air and water coolers, ice builders and other "packaged" units.

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For Dependable Operation on New Equipment or for Replacement, Specify Phillips.

H. A. PHILLIPS & CO. Designers and Engineers Refrigeration Controls Systems
3255 W. Carroll Avenue • Chicago 24, Illinois
REPRESENTATIVES: The C & S Equipment Co. 2103 S. San Pedro Street, Los Angeles, California
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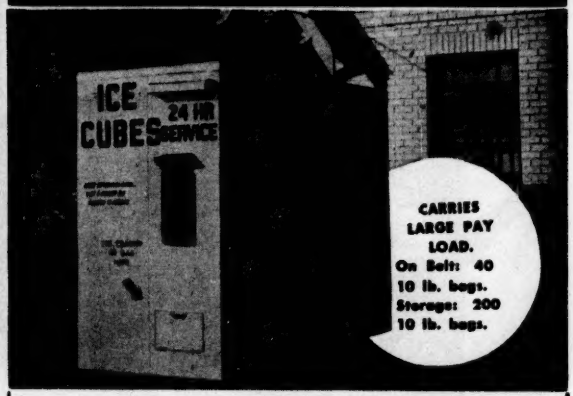
Polar Processed ICE VENDOR



- A COMPACT UNIT— Cabinet only 4' 2" wide x 9' long.
- OPERATES AT LOW COST— Aluminum exterior reflects 97% of all radiant heat.

WRITE TODAY for literature and prices on complete line of POLAR Stations and Vendors. Dept. I-6.

REFRIGERATION ENGINEERING CO.
MONTGOMERY, MINNESOTA

plied separately. All sections and segments of pipe insulation are three feet long.

Thicknesses available are nominal 1, 1½, 2 and 2½ inches, depending on pipe sizes. All thicknesses conform to simplified dimensional standards or "nesting" sizes, permitting multiple-layer build-up of insulation to any desired thickness. Fits all standard pipe sizes to 33 inches and copper tubing to 6 inches, inclusive.

Joint sealing strips, of the same material as the Vapor Barrier jacket four inches wide and cut to the proper length, will be furnished with every section.

Vapor Barrier adhesive, used to seal the longitudinal and transverse joints of the vapor barrier jacket, is available in one or five gallon cans.

This dual temperature pipe insulation may be used on all pipes whose temperatures range from sub zero to 250 F although the insulation has been designed primarily for indoor use. If the pipe lines must run outdoors a 35-pound roofing felt jacket should be placed around the vapor barrier and lap-sealed for protection against the weather. The ambient temperature limit of the adhesive and jacket is 150 F.

For pipes up to 12 inches in diameter sections are covered with the vapor barrier jacket. A flap extends beyond the insulation and, before installation begins, this flap is coated with a layer of adhesive. One half-section of the insulation is placed against the bottom of the pipe. The top half-section, hinged by the vapor barrier, is laid over the pipe and the flap is smoothed down to seal the longitudinal seam. To improve the appearance of the pipe line, the insulation may be rotated so that the seam is out of sight. Joints between two sections of insulation are sealed with a four-inch wide strip of vapor barrier paper supplied with the insulation.

For pipes over 12 inches in diameter the vapor barrier is supplied separately from the insulation, which is furnished in segments. To hold the insulation in place until the vapor barrier can be applied, soft copper or copper coated wire is used. The vapor barrier is then applied over the wired segments of insulation and is sealed at all the joints with an adhesive.

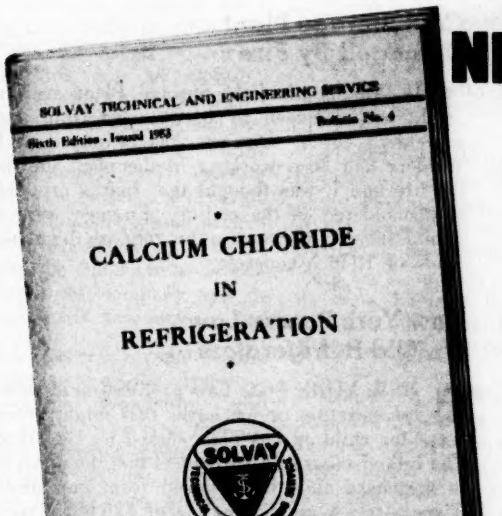
In cases where two or more layers of the insulation are applied to a pipe, the vapor barrier is applied on each layer. All joints should be staggered for maximum insulating efficiency. Particular care must be taken in any phase of application to see that the vapor barrier is not cut or punctured.

This pipe insulation requires no additional finish, since the black vapor barrier paper with its metal bands make a neat and pleasing appearance. If the insulated pipe is to be painted, asphalt compatible white or aluminum paint should be used or a sizing must be applied to the jacket first to prevent asphalt from bleeding through the paint.

After the pipe insulation has been sized and painted, the bands are put in place. One band is placed at the edge of each joint strip and from one to three bands are spaced uniformly between the joints.

Selling Fish on Ice

THE Progressive Grocer devoted two pages and four beautiful photographs in its March issue to selling fish. The story is of interest to the ice industry because two of the four photograms were large iced displays, the kind that do a real selling job for fresh fish.



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Position_____

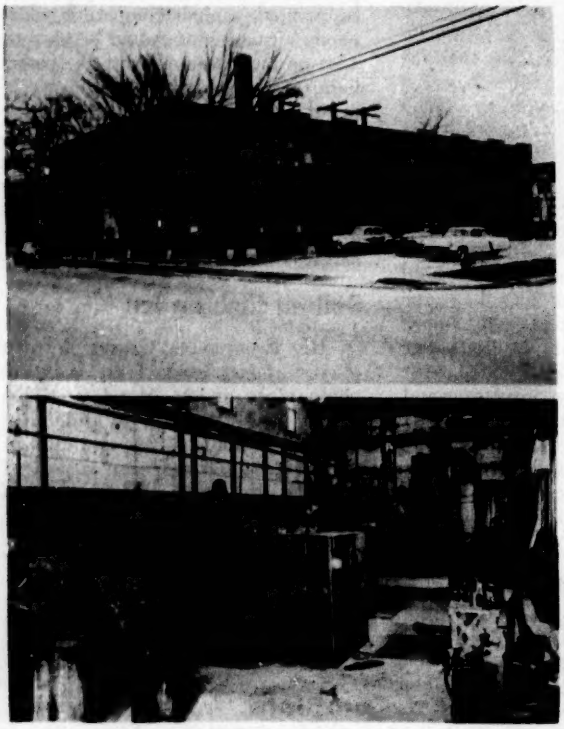
Company_____

Address_____

56-6

King Zeero Completes New Plant No. 2

COINCIDENT with its 25th anniversary, the King Zeero Company recently commenced operations in a newly completed plant located at the corner of Montrose and Kildare Avenues, Chicago. This is known as Plant No. 2 and complements the operations of Plant No. 1, located several miles to the east. The Company's general offices have also been transferred to the new plant, where modernly designed, spacious offices have been created.



New King Zeero Plant No. 2. Above, exterior; below, interior of plant

This new plant has permitted considerable expansion in the size and capacities of ice builders the company manufactures. Nearly 200 sizes of vertical ice builders and ice builder cabinets are now offered in capacities varying from 500 to 36,600 pounds of ice. King Zeero also makes a widely accepted line of oil separators.

Many industries utilize "King Zeero" units for air-conditioning their offices and processing areas as well as for fast cooling of dairy products, beverages, pharmaceuticals, bakery products, etc. The new King Zeero plant and offices are completely air-conditioned with their system. The Company's operations are under the direction of Joe I. Morrison, president, M. C. Pendleton, Vice-President and Don MacKenzie, general sales manager.

COMING CONVENTIONS

NATIONAL ASSOCIATION PRACTICAL REFRIGERATING ENGINEERS
November 2-4, 1954
Roosevelt Hotel, New Orleans, La.
J. RICHARD KELAHAN, Secretary

Cleveland Auditorium To Be Air Conditioned

THE installation of three large centrifugal refrigerating machines to handle the Cleveland Public Auditorium's complete air conditioning program will be done by Carrier Corporation. Similar to the big cooling machines installed by Carrier in Chicago for the last national political conventions, the Cleveland system will have one additional refrigerating machine and 25 percent more capacity—or approximately 1300 tons. Two of the centrifugal cooling machines, with a daily cooling capacity equal to 600 and 400 tons of ice respectively, will handle the main hall. The third machine with a 250-ton capacity will keep the Little Theatre cool. Installation work has begun and will be completed about June 1, 1954.

Louisiana Ice Plant Sold

THE People's Ice Company of Southwest Louisiana owned by Senator Elmore Bonin of St. Martinville has purchased the facilities of the Central Louisiana Electric Company's ice plant at Donaldsville, La., and the plant will continue operation under the new title of People's Ice Company. Mr. Bonin has also purchased the ice plants at White Castle and Thibodaux which added to two such plants in Abbeville and Lafayette gives him a string of eight ice-making plants. He is also owner of refrigeration storage plants at Breaux Bridge, Erath and Arnaudville. Dewey Fournet of St. Martinville will be general manager of the plants in this area with headquarters in Thibodaux. He will supervise the operation of the local plant and visit this city frequently.

Cold Storage Plant Damaged By Fire

THE Monmouth Cold Storage Plant at Neptune, N. J., was damaged by fire, started from sparks from a welder's torch. Damage was estimated at $100,000. Welders had been working in the plant the day before the fire and it was thought that sparks probably caught and smoldered in the ceiling. Firemen were unable to gain access to it because the roof of the structure was made of 10-inch concrete.

New York Passes Law On Old Refrigerators

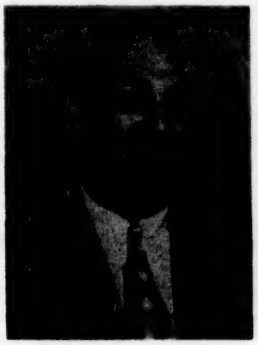
A NEW YORK State Law prohibiting abandonment of refrigerators or ice boxes that might become death traps for children has been signed by Governor Dewey. The bill effective July 1, requires that the door, lid, hinges or fasteners must be removed from any discarded refrigerators. A maximum fine of $25.00 is specified for the first offense and $100.00 for a second violation.

Falstaff to Lease Berghoff Brewery

A DEAL whereby Falstaff Brewing Corporation, of St. Louis, will lease the plant of Berghoff Brewing Corporation, Fort Wayne, Ind., for a period of 10 years with option to purchase, his been approved by directors of both companies, subject to approval by Berghoff's stockholders. The lease will become effective April 1. Financial transactions were not disclosed. Under its terms, however, Falstaff has the option to buy the Berghoff plant at any time during the term of the lease.

News of PEOPLE

EDWARD M. POLAKOFF has been appointed a vice-president of Alford Refrigerated Warehouses, Inc., 318 Cadiz Street, Dallas, Texas, it has been announced by Fred F. Alford, president.



Edward Polakoff

Before joining the Alford organization, Mr. Polakoff for seventeen years was Southwest district manager, with Dallas headquarters, for the Grabler Manufacturing Company of Cleveland, Ohio. As such, he was Grabler's top sales representative in the Southwest and had the responsibility of warehouse operation on a large scale from 1937 to 1954.

"Mr. Polakoff's broad experience ideally fits him into our picture," said Mr. Alford. "And his many contacts in the warehousing and distribution industry will be a definite asset to our company." His appointment is the first move in a program to expand the company's sales promotion activity, Mr. Alford said. In his new position, he will serve as coordinator between the company and its national and local accounts.

WILSON V. LITTLE, for many years General Secretary of the American Warehousemen's Association until 1946, and executive secretary of the Merchandise Division AWA has resigned the latter position, effective at the end of the 1953-54 association year. In recognition of his services he was awarded a plaque at the farewell luncheon of AWA at the 1954 annual convention. Mr. Little says he has not retired, only going into semi-retirement, and expects to continue active in business connections for some time yet.

PAUL A. VOLLMER, Produce Terminal Cold Storage Co., Chicago, Ill., was recently elected a vice president by the Board of Directors.—Cold Facts.

DEATHS

PRESTON I. TATMAN, manager of Diamond Ice and Coal Company of Wilmington, Delaware, died April 17, in Delaware hospital. He was 47. Mr. Tatman was a leader in Masonic and Shrine club activities. A native of Wilmington, he was employed by the Diamond Ice and Coal Company for several years, then opened a men's furnishing shop which he ran for about two years before returning to take over the Diamond Ice and Coal office. During World War II he was a First Lieutenant in the Delaware Wing, Civil Air Patrol.

GEORGE F. VAN DUYSE, 55, widely known in the refrigeration industry in Canada for many years, died April 12 at his home in Montreal. Mr. Van Duyse was born in Belgium and came to Canada in 1920. For the past 16 years he was associated with the Universal Cooler Company of Brantford, Ontario, serving as their representative in Quebec and Eastern Ontario.

WILLIAM R. HACKETT, 78, owner of the W. R. Hackett Fruit and Cold Storage, Springfield, Ohio, died May 1 in a Springfield hospital. He began his career in the wholesale fruit business in 1894 and in 1915 opened Springfield's first cold storage plant in partnership with Charles J. Bowlus.

ALBERT M. DAY, president and founder of the Bay State York Company, Boston, Mass., died April 30, at his home. He was 50. Mr. Day started as an apprentice for the old York Corp., in 1927 and later became its New England commercial sales manager and formed the Bay State York Company in 1944.

FREDERICK H. WAGNER, Jr., vice-president in charge of Sales for the Jamison Cold Storage Door Co., Hagerstown, Md., died at Hagerstown on April 7. Mr. Wagner had been with the firm for fourteen years, starting as sales manager in 1940.

JOSEPH F. KNEFEL, stationary engineer for the City Ice Company, Kansas City, Kans., for 31 years, died April 24, following a heart attack. He was 67 years old.

ALFRED H. GROSSMAN, refrigeration engineer for the Ohio Agricultural Experiment Station for 43 years, died at his home at Wooster, Ohio, April 26. He was 80.

ONE CONTROL DOES THE JOB OF TWO

Mercoid DA-400 Series Pressure Controls incorporate a single bourdon tube which actuates two independently adjustable Mercoid magnet operated mercury switches to accomplish various circuit operations. For example:

1. Close one alarm circuit at high pressure and another at low pressure with both circuits open over operating range.
2. As an electrical interlock to open one circuit as pressure rises above and the second circuit as the pressure drops below operating range.
3. To provide two-stage control by opening or closing one circuit on a rise in pressure and the second circuit on a further rise in pressure.

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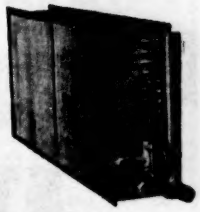

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MANUFACTURERS' NEWS

Mathieson Chemical and Olin Industries To Merge

THE boards of directors of Mathieson Chemical Corporation and Olin Industries, Inc., voted unanimously to submit to their stockholders at special meetings on June 29, 1954, a proposal to merge the two companies. The new company will be known as the Olin Mathieson Chemical Corp.

Mathieson is a leading producer of industrial and agricultural chemicals, petrochemicals, and through its E. R. Squibb & Sons Division, drugs and pharmaceuticals. Its operations are world wide and include 25 plants in the United States and 16 in foreign countries.

Olin Industries is a large producer of metals and fabricated parts, industrial explosives, military and sporting firearms and ammunition, cellophane, polyethylene, fine specialty papers, forest products, powder-actuated fasteners and tools, and electrical products

New Selling Agent For Liquid Chlorine

BARADA AND PAGE, INC., 4138 North Second Street, St. Louis, has been named to handle all sales of liquid chlorine in cylinder quantities which previously had been handled by Monsanto Chemical Company's Inorganic Chemicals Division, it was announced by Tom K. Smith Jr., division manager of sales.

In the future, Monsanto will handle chlorine sales in tank car quantities only. Liquid chlorine is used principally for water purification. Jamie C. Beard, Barada and Page, Inc., branch manager, at the same time announced plans for special chlorine "filling station" facilities to receive the chemical in tank car quantities. Smaller metal cylinders of 150-pound or 2,000-pound capacity for the ultimate consumer will be handled by Barada and Page, Inc.

Vending Installations

DURING the month of March 1954, S & S Ice Vending equipment was installed by the following companies. Reports from S & S indicate that during the first quarter of 1954, over three-quarter million dollars worth of Ice Vending stations and vendors were set in operation:

Henry Voelcker Ice Co., Danville, Pa.
City Ice Delivery, Wichita, Kansas.
Clark Buford Ice Service, Algood, Tenn.
United Gas & Oil Co., Mishawaka, Ind.
City Products Corp., Cincinnati, Ohio.
City Products Corp., Loveland, Ohio.
M. A. Young Co., Philadelphia, Pa.
City Products Corp., Columbus, Ohio.
Home Ice Co., Petersburg, Va.
Brazil Ice & Storage, Rockville, Ind.
Harbor Inn, Slidell, La.
Ed. Lackner Co., Havertown, Pa.
Columbus & Deigan Co., Monongahela, Pa.
Vista Beverage Co., Boise, Idaho.
Pure Ice Co., Daytona Beach, Fla.
City Products Corp., Pittsburgh, Pa.
City Products Corp., St. Louis, Mo.
DePrez Ice & Fuel, Shelbyville, Ind.
Brest Packing Co., Shamokin, Pa.
Reading Merchants Ice Co., Reading, Pa.
Worton Creek Co., Chestertown, Md.
City Products Corp., Ashtabula, Ohio.
Consumer Ice Co., El Paso, Texas.
Liberal Produce Co., Liberal, Kansas.
Interstate Ice Co., Indianapolis, Ind.
Robert Haralson Co., Maryville, Tenn.
Lewis & Keyte Co., Brawley, Calif.

CATALOGS AND BULLETINS

Guide on Hazardous Gases

TO MEET the need for a more comprehensive list of hazardous gases and equipment recommended to protect against them, Acme Protection Equipment Co., Chicago manufacturers of gas masks, has published the Acme Protection Guide for Hazardous Gases. The tabulation shows a total of 433 gases, fumes, mists and dusts present in operations where a gas mask should be worn. Included is descriptive information.

New Alco Refrigerant Controls Catalog

A NEW condensed catalog has been issued by Alco Valve Company to simplify the job of ordering refrigerant controls. It describes all controls in Alco's complete line. Many valves not formerly cataloged are included, new models and new sizes. It presents refrigeration data and tables necessary for the proper selection and ordering of the controls and also includes shipping weights. Engineering data will be issued in separate literature. Alco's new description code for Thermo Valves is used in this issue. The number with the valve type indicates the capacity. Example: TCL 200 stands for a valve of 2 tons capacity. THL 5000 a valve of 50 tons capacity.

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Heavily compressed 50-lb. refrigeration cubes . . . dissolve evenly . . . strengthen brine continuously and uniformly . . . eliminate labor, guesswork and waste in the handling and measuring of loose salt.

Always uniform. Constant Salometer strength reduces product shrinkage . . . icing of coils. Clean brine prevents clogging of spray nozzles . . . chill-room fog. Less salt . . . less work . . . better results all around!

Try Sterling KOOLER KUBES Today! Or, for information, write
INTERNATIONAL SALT COMPANY, INC.
Scranton 2, Pa.

Birds Eye Expands

BIRDS EYE, expecting highest sales of frozen foods in history in 1954, announces a plan for reallocation of production facilities to keep up with demand. General Manager F. J. Otterbein says that frozen-food production is being expanded at such places as Walla Walla, Wash.; Caribou, Maine, Waseca, Minn., Nampa, Idaho, Avon and Wayland, N.Y. The Mt. Morris plant in New York was closed recently. The Marion Ind., plant, originally a condiment plant, has not proved efficient for quick-freezing vegetables and will be closed. Otterbein says, "We are concentrating production in areas where we get the best yields of the highest quality fruits and vegetables and where we can process them most efficiently. That's how we're increasing our volume and keeping unit costs down to meet the terrific competition in the frozen-foods business."

ASRE — Fiftieth Anniversary

IN DECEMBER, 1954, the American Society of Refrigerating Engineers will celebrate its 50th anniversary year at the Seattle meeting. The 50th anniversary committee has been asked to solicit the loan of pictures of refrigerating or ice equipment and installations from "the olden days" (prior to 1930). These photographs are to be displayed appropriately at the Seattle meeting and will be returned to the owners, if desired. The photographs should carry full descriptive titles. Because of limited space for display, pictures of refrigerated warehouse buildings or persons in the industry in the past are not solicited. The committee will much appreciate the cooperation of all members.—TRRF Bulletin

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20 tons to 150 tons.
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12½x14½ York—175 h.p. syn. motor.
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130 h.p. Diesel engine. 60 & 75 h.p. slow speed motors. G.W. breaker el. unit. Brine coolers, ice cans, blowers, etc.
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FOR SALE—York and Frick 9 x 9, Vilter 9½ x 9½, and 10½ x 10½, all high speed; 9 x 9 slow speed, Baker 4½ x 4½. Cranes, can fillers, condensers, brine coolers, cans, agitators, blowers. 15 ton ice plant, Diesels. Parke Pettegrew, 370 West Broad St., Columbus 8, Ohio.

For Sale—One Buckeye Diesel 112 h.p., 400 r.p.m., 3 cylinder, 9¼ x 14. One generator 70 K.V.A. Westinghouse; one Superior Diesel 65 h.p., 500 r.p.m., 4 cylinder 7 x 9. One Graver water softener 21 gal. per minute. All in good condition; make us an offer. Contact Earl Gibson, Gibson Arena, Muncie, Ind.

For Sale—One No. 20 Lilly Pick Ice sizer drum 24" by 15" diameter, $100.00; portable hydraulic 22 inch belt conveyor, 12 feet long; also 20 inch belt conveyor 28 feet long. People's Ice Co., 1054 Oswego Blvd., Syracuse, N. Y.

FOR SALE—10"x7" Worthington booster compressor. 5x5, 7½x7½, 8x8 and 9x9 Yorks splash lubrication. 3x3 self-contained York. Write E. Niebling, 1546 St. Clair Ave., Mt. Healthy. Cincinnati 31, Ohio.

FOR SALE—500 nearly new Safe-Way frozen food lockers. Contact William Balderston, Whitford, Penna. Phone Exton 784.

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INDUSTRIAL PROPERTY in Tulare, California

● Property located on the north edge of town, one block east of Highway 99. Size, approximately 4 acres with about 25,000 square feet of buildings.

Water system; one 60 h.p. motor and Wintroath deep well pump; one 25 h.p. motor and Byron Jackson 5-stage deep well pump; one 60,000 gal. water storage tank. *Boilers: two up-to-date Badenhausen Boilers together with equipment necessary for automatic operation. *Refrigeration: three York compressors of 56 ton, 35 ton and 75 ton capacity.

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8x8 York Y-26 8x8 York Y-28
10x10 York Y-28 12½x12½ York Y-26
9x9 Frick type H capacity control D.C. 100 HP 360 RPM Syn. Motor
9x9 York Y-28 capacity control D.C. 100 HP 300 RPM Syn. Motor
10x10 York Y-16 100 HP 200 RPM Syn. Motor
10x10 York Y-16 70 HP 180 RPM Syn. Motor
10x10 York Y-28 100 HP 300 RPM Syn. Motor
12½x14½ York Y-28 D.C. 200 HP 257 RPM Syn. Motor

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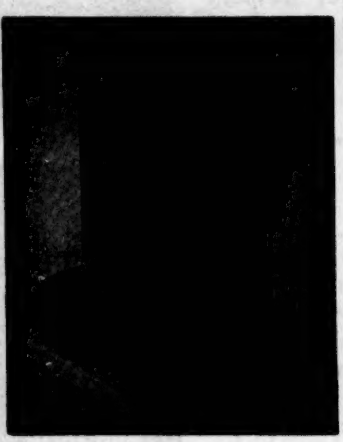

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PRINCIPLES • PRACTICE • OPERATION

By Guy R. King

29 Chapters—340 ILLUSTRATIONS

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Different refrigerants and the various sizes of equipment are all given equal treatment. There are no complicated formulae or mathematics in the book. It develops the subject in logical step-by-step method with clear explanation of all factors.

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How automatic controls operate and what they do in the system are explained in simple terms. Parts and their functions are shown. This important field, in present-day refrigeration, is covered in a fashion that tells how to use controls and keep them operating to good advantage.

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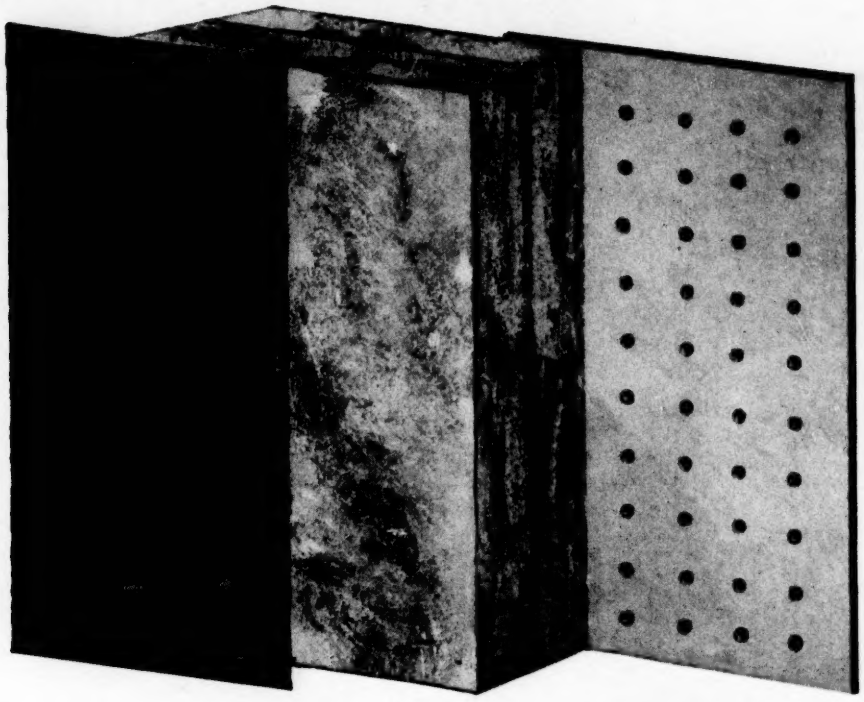
WHY THE TREND IS TO FIBERGLAS!



VAPOR SEAL, *on the warm side* only, *stops nearly all vapor from getting into the insulation.*

FIBERGLAS PF INSULATION *is installed without multiple vapor barriers ... no internal vapor-resistant surfaces to cause condensation within the insulation.*

VAPOR POROUS FINISH *of perforated hard surface board on cold side of wall provides an interior finish that lets vapor pass through freely. Inexpensive, easy to install.*

stays dry...stays efficient!

No "locked-in" moisture to cause trouble in Fiberglas* PF dry wall construction

RESULT: Cold storage insulation installation that's unsurpassed for thermal efficiency and economy. The negligible amount of vapor that penetrates the highly efficient vapor barrier passes easily through Fiberglas PF *as vapor*. It won't condense and cause lower thermal efficiency and costly repairs. And, the inorganic fibers of glass in PF insulation won't soak up moisture, won't rot.

As for installation savings—large lightweight panels of Fiberglas PF are quickly and safely installed between treated wood studs or with metal clips. If the insulated walls must be altered for structural changes or remodeling from coolers to freezers, insulation and finish can be readily removed and replaced at low cost.

Today, the recent installation of Fiberglas PF in many of the largest sharp freezer warehouses continues the trend to PF—a trend begun 15 years ago.

Dry wall construction is only one application for versatile Fiberglas Insulations. The complete Fiberglas line offers you a full range of sizes, types, thicknesses and densities.

Outstanding advantages of Fiberglas Insulations

Extremely low thermal conductivity • maximum versatility • a product for every need • low installation and maintenance costs • highly moisture-resistant • easy to cut and apply • good handling characteristics • fibers are glass and will not burn or rot • lightweight • odorless • will not expand or contract • effective for life of building.

**Fiberglas is the trade-mark (Reg. U.S. Pat. Off.) of Owens-Corning Fiberglas Corporation.*

OWENS-CORNING

FIBERGLAS

Owens-Corning Fiberglas Corporation
Dept. 165-F, Toledo 1, Ohio

Please send me the literature I have checked.

- ☐ Why the Trend is to Fiberglas
- ☐ Insulations for Low Temperature Structures and Equipment
- ☐ PF Design Details

Name_____

Title_____ **Firm**_____

Street_____

City_____ **State**_____

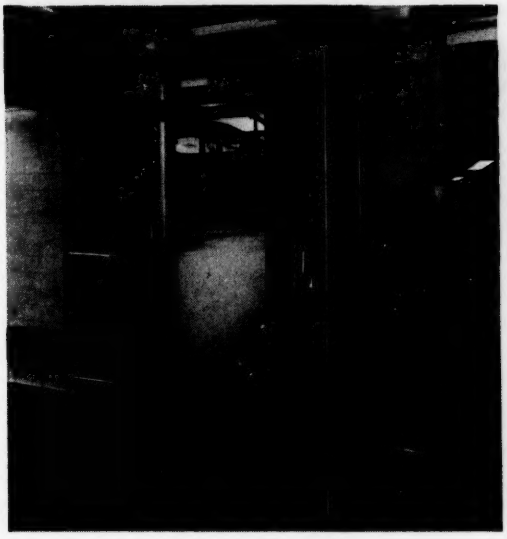
SAFEWAY STORES New Meat Warehouse

in Kansas City Speeds Handling Assures Maximum Sanitation with JAMISON Doors

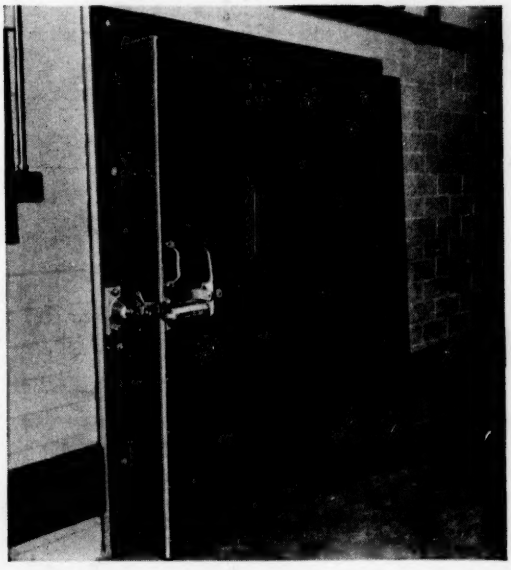
At its huge Distribution Center in Kansas City, Kansas, Safeway Stores protect the pocketbooks of customers through streamlined handling methods . . . safeguards their health by following the best sanitary measures.

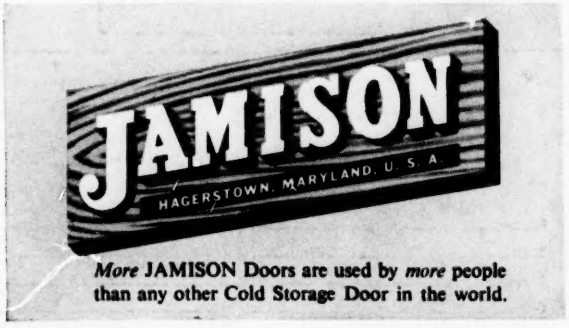
Jamison Doors play a substantial part in this successful operation. Their great width accelerates traffic by giving plenty of clearance. Because they're completely metal-clad, they match the sanitary tile walls in ease of cleaning and attractive appearance.

Jamison Doors of standard or special design can also be supplied to meet your cold storage requirements. For additional information, consult your architect or write to Jamison Cold Storage Door Company, Hagerstown, Maryland, U.S.A.



The Extra Elbow Room Offered by Double Doors keeps traffic moving easily.





More JAMISON Doors are used by *more* people than any other Cold Storage Door in the world.